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DISEASES CAUSED BY BACTERIA AND FUNGI

MCDIARMID, A. (1948.) Studies on enzootic staphylococcal infection in lambs associated with tick-bite. IV. Pathogenicity of the causal organism in the lamb.—*Vet. Rec.* 60. 1-3. [For previous parts, see *V.B.* 17. 63; & 19. 253.] 2467

M. infected a group of nine lambs, by the intravenous route, with a suspension of staphylococci originally isolated from a case of tick pyaemia. The inocula (suspension in saline of 24-hour culture) varied from 1 ml. to 0.001 ml. of a No. 8 Brown's scale suspension of the staphylococcus. Lambs receiving 1 ml. and 0.1 ml. developed a septicaemia, fatal within 30 hours. Lambs receiving 0.01 ml. to 0.001 ml. developed pyaemia with multiple abscess formation. In both groups, staphylococci were isolated in culture from most of the organs.

Both clinically and P.M. the experimentally produced disease resembled naturally occurring tick pyaemia.—ANGUS FOGGIE.

BOSGRA, O. (1949.) De samenklonteringsproef en de diagnostiek der bovine staphylococcon. [Differentiation of the pathogenicity of staphylococci by the coagulase test.]—*Tijdschr. Diergeneesk.* 74. 891-896. [Abst. from English summary.] 2468

Eighty strains of staphylococci isolated from milk or from mastitis cases were studied using the clumping test with bovine plasma, the coagulase test and pathogenicity tests on white mice. There was, in general, agreement in the results of the clumping test with bovine plasma and the coagulase test with human or rabbit plasma.—M.C.

BUTAYE, R. (1943.) Recherches sur les streptocoques β hémolytiques à zone large du groupe C, isolés des animaux. [Research on β haemolytic streptococci (wide zone) belonging to group C, isolated from animals.]—*Acta biol. belg.* 3. 53-56. 2469

Of 175 strains of Group C streptococci isolated from horses, cattle and pigs, the action on trehalose and sorbitol was as follows:—

	Horses	Cattle	Pigs
Trehalose + sorbitol—	90	9	2
Trehalose—sorbitol +	60	14	0
No. of strains	150	23	2

The general biochemical characteristics of all strains were the same, but they did not cause fibrinolysis.—J. I. TAYLOR.

RØMER, O. (1947.) Om Gruppe G-streptokokkernes betydning ved yverinfektioner hos kvaeg. [Role of Group G-streptococci in bovine mastitis.]—*Medlemsbl. danske Dyr lægeforen.* 30. No. 16-17. pp. 1-18. [Abst. from English summary.] 2470

In nine herds comprising 205 cows, 94 animals were found to be infected with streptococcal mastitis. 54 of the affected animals (97 quarters) were infected with Group G, and 29 with Group I streptococci. 65% of Group G infected quarters had pathological changes in the udder tissue or in the secretion. Altogether, Group G streptococci were isolated from 123 quarters of 68 cows in these herds. 86 of the strains were serologically examined and confirmed as belonging to Group G. In two herds, penicillin treatment eradicated the infection from all of 41 quarters infected with Group G, and from all but one of 31 quarters infected with Group I streptococci. *In vitro* tests of 16 Group G and 28 Group I strains showed the former to be more sensitive to penicillin than the latter. R. considers that Group G streptococci may play an important role in the causation of mastitis in certain herds.

—G. P. MARSHALL.

OLSEN, S. J. (1947.) Infection with Group-N streptococci (Ernst) in cattle.—*Skand. Vet. Tidsskr.* 37. 333-349. [In English.] 2471

In 1942 Ernst described strains of β -haemolytic streptococci isolated from cows' milk, which could not be classified serologically in any of the recognized streptococcal Groups A—K: he considered that these organisms constituted a specific serological group to which the letter N might be appended. The streptococci of Group N (Ernst) should not be confused with the lactic streptococci, to which in present usage and terminology the Group letter N refers. Streptococci of Group N (Ernst) have been isolated from cows' milk frequently since their original description.

The author of this paper recorded studies since 1945 on a small herd massively infected with these organisms; at one time, 11 cows out of 17 were infected, 27 quarters being involved, and of 60 lactating quarters approximately 50% gave an altered secretion. The infections were chronic in nature and were associated with reduction in milk yield, but not with subsequent atrophy of the infected quarters. A bacteriological count of the pooled milk of the herd on one occasion gave a figure of 165,000 streptococci of Group N (Ernst) per ml.

A total of 57 strains, all of which resembled the strains described by Ernst except that they failed to hydrolyse hippurate, were isolated from the herd in question; an account was given of their cultural and biochemical characteristics. The strains were differentiated serologically from the streptococci of Groups A, B, C, and G; all gave positive reactions with Group N (Ernst) sera. The ultimate classification of these streptococci remains to be developed, but it was suggested that they merit consideration in bacteriological investigations of mastitis and in eradication programmes.—CLIVE BRIGGS.

HILLERMARK, K. (1948.) Något om serologisk gruppdifferentiering av mastitisstreptokocker. [Serological group differentiation of mastitis streptococci.]—*Skand. Vet. Tidskr.* 38. 257–277. [Abst. from English summary.] 2472

Fundamentals of the antigenic structure of streptococci were discussed and the preparation of a group serum and a bacterial extract using formamide described. 585 streptococcus strains belonging to some of Lancefield's serological groups or the N-group suggested by Ernst and 44 strains of *Str. uberis* were isolated from 3,580 milk samples. Group G streptococci, all of which fermented aesculin, salicin, lactose and saccharose, as well as Group N streptococci, were important mastitis strains. Serological group testing should be used in conjunction with biochemical examination for identifying strains isolated from udder secretions.

FINCHER, M. G. (1949.) Bovine mastitis.—*Rep. N.Y. St. Vet. Coll.* No. 27. pp. 81–121. 2473

Results of the New York State mastitis control programme 1947–48, which involved 266 farms, are summarized in 32 tables. Improvement in management and environment resulted in a lowered incidence of udder infection and mastitis, but this drop was not so great as had been hoped. No new information on the environmental causes of mastitis was obtained, except that less streptococcal mastitis occurred in those herds where quick milking was practised.

Trials were made with penicillin bougies, with penicillin in 50 ml. 25% sodium sulphamethazine solution, and with streptomycin (20,000 U.) in 100 ml. 5% sulfamylon (4-amino-2-methylbenzene-sulphonamide hydrochloride, a product used against wound infection with gas-forming organisms).

A vehicle for penicillin ("penicle") an oil-water mixture said to adhere to the lining of ducts and cisterns and to float on top of milk in the udder, proved useful. The minimum dosage of streptomycin in mastitis caused by coliform organisms was given as 500,000 units in 40 ml. of water at 12-hour intervals for 2–5 days. Penicillin in collapsible tubes was considered useful only as follow-on treatment after the original penicillin infusion.—ROY MACK.

FINK, W. J. & GRUNGE, W. H. (1949.) Traffic in mastitis cows.—*Rep. N.Y. St. Ass. Milk Sanit.* 1948. pp. 123–125. 2474

The City of New York Department of Health investigated traffic in mastitis cows as a cause of the spread of the disease. It was concluded that such traffic is not a significant factor.

—C. C. BANNATYNE.

EDWARDS, S. J., HUGHES, D. L. & TAYLOR, J. I. (1948.) The application of sulphanilamide therapy for the control of *Str. agalactiae* infection in one herd.—*Vet. Rec.* 60. 45–47. 2475

The authors described attempts to control *Streptococcus agalactiae* infection in a herd of 55 cows by frequent bacteriological tests and treatment of all infected cows. The sulphanilamide was used in a 30% emulsion and 50 ml. were administered by intramammary injection daily following afternoon milking, 2–3 injections being given. Dry cows were given four injections into each quarter on consecutive days and the milk was bacteriologically examined at the commencement of lactation. The infection rate was reduced in milking cows from about 63% to 5%. For the first four months of the experiment lasting 10 months, there was a small number of infected cows at each weekly test and during the

following six weeks there was no established case of infection although by enrichment culture *Str. agalactiae* was found to be still present. Thereafter the herd was not clear of infection despite continuous treatment of all new infections.

—M. WOODBINE.

FRANCIS, J. (1949.) *Studies on Str. agalactiae* infection. VI. Observations on epizootiology and the use of sulphone and penicillin as aids to eradication.—*J. comp. Path.* 59. pp. 225–244. 2476

The eradication of *Streptococcus agalactiae* infection from five herds by the use of diaminodiphenyl sulphone and penicillin and observations on the epidemiology of the disease are described and summarized. A table is given of the epidemiological data in two herds in which eradication took considerable time and there are six other tables giving detailed information of the study. F. considered that the eradication of *Str. agalactiae* from a herd, area or country may be a simpler and less costly task than the eradication of TB.—R. MARSHALL.

EDWARDS, S. J. & TAYLOR, J. I. (1949.) The control of *Streptococcus agalactiae* infection in herds by means of therapeutic treatment.—*Vet. Rec.* 61. 780–783. 2477

Six herds maintained under varying systems of hygiene were examined. One herd was machine milked, the hygiene prior to and during milking being of a high standard. *Str. agalactiae* infection in 85% of the cows was eradicated by intramammary infusion of 50 ml. of 30% sulphanimide emulsion, followed by 100,000 units of aqueous penicillin in resistant cases. This herd remained free for over two years.

In the five other herds, four daily injections of 40,000 units of penicillin in oil, given as one course or repeated, eliminated infection in 95% of the cows that were originally infected. Two herds were completely freed; in two in which the hygiene was poor and in which hand stripping was practised, infection though quickly controlled rose after a period of nine weeks.

—C. MACKENZIE.

VAN OIJEN, C. F. & WILLEMS, G. B. R. (1949.) Determinatie van mastitis-verwekkende bacteriën. [Determination of bacteria causing mastitis].—*Tijdschr. Diergeneesk.* 74. 91–96. [English summary.] 2478

A method is described of differentiating *Streptococcus agalactiae*, *Str. dysgalactiae*, *Str. uberis* and *Str. pyogenes*. Suspected material was sown on selective media such as agar horse

serum-veal broth, litmus-milk medium, beef broth, gelatin, sodium hippurate solution, horse blood-agar plate medium, aesculin-agar and solutions of compounds such as sucrose, raffinose, salicin, mannitol, sorbitol, trehalose, inulin, amygdalin and arbutin in broth containing difco-meat extract, difco-neopeptone, horse serum or sodium chloride.—E. G.

HEISHMAN, J. O. (1947.) Sensitivity to penicillin of microorganisms associated with bovine mastitis.—*Amer. J. vet. Res.* 8. 257–259. 2479

The sensitivity of 150 strains of different bacteria isolated from cases of mastitis occurring in seven different herds was examined, typical organisms only being used, the tests being made on blood-agar plates.

Generally the sensitivity of different strains of the same type of organism was uniform. *Streptococcus agalactiae*, *Str. uberis* and *Str. dysgalactiae* proved to be very sensitive and with two exceptions out of 52, *Staphylococcus aureus* was equally so. *Corynebacterium pyogenes* was sensitive, but unidentified streptococcal species varied widely in their sensitivity. Ten cultures of rod forms, probably coliform bacteria, proved insensitive.—C. D. WILSON.

SEELEMAN, M. & TILGNER, K. (1949.) Die Behandlung der durch verschiedene Kokkenarten hervorgerufenen Mastitiden des Rindes mit Penicillin. [Penicillin therapy of bovine mastitis caused by cocci].—*Tierärztl. Umsch.* 4. 255–260. 2480

A general note on the subject.

—MALCOLM WOODBINE.

BEIJERS, J. A., BERENDSEN, H. L. & HESSE, N. C. W. (1949.) De behandeling van verschillende vormen van mastitis met penicilline en sulphone (4-4' diamino-diphenylsulphone). [Treatment of various forms of mastitis with penicillin and 4-4' diamino-diphenylsulphone].—*Tijdschr. Diergeneesk.* 74. 73–90. [English summary.] 2481

Of 37 cows infected with mastitis caused by *Streptococcus agalactiae* 29 recovered completely and three clinically after three intramammary injections of 30,000 units every 24 hours or two injections each of 25,000 units every 48 hours. Penicillin + sulphone and sulphone alone gave less satisfactory results. In *Str. dysgalactiae* mastitis penicillin was effective, but not in mastitis caused by *Str. uberis*. Of eight cows with staphylococcal mastitis two recovered after penicillin treatment.—E. G.

TRUSSELL, P. C. & STEVENSON, W. G. (1949.) Streptomycin concentrations in milk following insertion of streptomycin bougies into the bovine udder.—*Canad. J. comp. Med.* **13**, 209–212. 2482

Streptomycin bougies were inserted in the teats of normal cows and the milk assayed at varying intervals for drug levels. Sufficient streptomycin, 8 or more $\mu\text{g.}$ per ml., was found in both the fore milk and strippings up to 12 hours to be effective against *Streptococcus agalactiae* and *Bact. coli*.

The concentration of streptomycin in the milk varied inversely with the quantity of milk secreted and the amount in the bougie. Bougies containing 25,000 $\mu\text{g.}$ were of sufficient potency and were not irritating to the bovine udder.

—J. W. PULLIN.

ANON. 1949. Iodized oil for mastitis. Preparation and administration.—*Iodine Information*, No. 23, pp. 8. 2483

In dry cows, using a solution containing 3.6 g. iodine dissolved in 45 ml. ether diluted with 15 ml. light liquid paraffin and made up to 1 gal. with light liquid paraffin, up to 500 ml. were injected via the teat canal into the milk cistern; the quarter was massaged to distribute the oil, which could be left in for the whole dry period or the quarter could be stripped out and the injection repeated after 10–15 days. In lactating animals, about 100 ml. were injected after thorough milking, the quarter was massaged and the oil milked out; this procedure was repeated if much infected material was obtained and then 100 ml. were injected and left till the next milking.—R. MARSHALL.

BUER, A. W. & BRATLIE, O. (1947.) Fordelingen av infusjonsvesken i juret. [The distribution of liquids infused into the udder.]—*Skand. Vet-Tidsskr.* **37**, 565–596. [In Norwegian: English summary.] 2484

The authors refer to the earlier work of BRATLIE [V.B. **13**, 142] of which this is a continuation, being a detailed account of the fate of liquids infused into the udder in 25 cows which were slaughtered and submitted to detailed macroscopic, histological and microscopic examinations. The liquids infused were trypanflavine in aqueous solution, in oil and in oil mixed with light liquid paraffin, trypanflavine-methylene blue solution, liquid paraffin with "entozon" [a mixture of rivanol and a nitroacridine derivative], methylene blue, and Indian ink in aqueous solution, in mucilage or in solution with trypanflavine.

The infused liquid penetrated throughout the udder, into all the alveoli in the case of 19 of them, and rather less completely in the other

six; parts of the parenchyma remained unpigmented. Induration of the udder inhibited distribution of the liquid infused. Massage after infusion had little effect on distribution.

—F. E. W.

TAVONI, V. (1949.) Contributo allo studio della patogenesi del carbonchio ematico. Ricerche sperimentali. [Pathogenesis of anthrax.]—*Riv. Med. vet. Zootec.* **1**, 251–264. [English & French summaries.] 2485

Most anthrax bacilli of a dose injected intradermally into g. pigs are retained by the body defences for 45 minutes at the site of inoculation. Some, however, get into the blood stream where they are dealt with by the phagocytes, but some reach the internal organs in which circulation is slow, such as the liver and spleen where they remain quiescent for $1\frac{1}{2}$ to 24 hours. Later, as a result of some break in the state of equilibrium between the organisms and the body defences, the mucin of the organisms, possibly playing a role by neutralizing the defences, the blood stream becomes heavily invaded with resultant septicaemia.

PROKŮPEK, K. (1949.) Význam kalových vysoušecích nádrží v prevenci sněti slezinné. [Viability of anthrax spores in sediment from tan pits.]—*Čas. československ. Vet.* **4**, 281–284. [English and Russian summaries.] 2486

The incidence of *B. anthracis* infection was comparatively negligible on farms where sediment from tan pits was used as a fertilizer and it was surmised that this waste might therefore be antagonistic to the growth of anthrax bacilli.

No such antagonistic properties could be demonstrated in this waste; anthrax spores introduced experimentally into such sediment remained virulent for a considerable time.—E. G.

ERCEGOVAC, D. (1949.) Cepne nezgode i prodori imuniteta kod antraksa. [Death following anthrax immunization.]—*Bilten Vet.* **2**, No. 4, pp. 50–53. 2487

A general discussion with an account of the circumstances in which the Pasteur first and second vaccines can be used.—E. G.

KÄSTLI, P. (1947.) Ein Beitrag zur Frage der Tuberkelbazillenausscheidung in der Milch tuberkulös erkrankter Kühe. [Excretion of tubercle bacilli in the milk of tuberculous cows.]—*Schweiz. Arch. Tierheilk.* **89**, 103–126. 2488

K. described work done to ascertain whether cows with TB. localized in parts of the body other than the udder excrete tubercle bacilli in their milk. Ten lactating cows were inoculated subcutaneously in the neck with two virulent strains of tubercle bacilli, six with strain 1019 and four

with strain 32. Their milk was tested over a period of several months by g. pig inoculation and tubercle bacilli were demonstrated in the milk of only two of the cows. The remaining eight did not excrete tubercle bacilli during the period under review, although they had primary and secondary tuberculous lesions.

The result of these tests confirmed that excretion of tubercle bacilli takes place only when the tuberculous process begins to affect the udder, usually commencing before lesions become visible. Negative milk and udder tests do not necessarily exclude the possibility of excretion. Tubercle bacilli were excreted in the milk for some weeks before either changes in the milk or a lesion of the udder were apparent.

—ALAN G. WARREN.

NEWTON, O. M. (1940.) Profilaxis de la tuberculosis bovina en el ganado de cría, tambo y en la cabaña. [Prophylactic treatment of breeding stock against bovine tuberculosis.] —*Rev. Med. vet., Montevideo*. 3, 393–409. 2489

N. described in detail a strict régime for the control of TB. enforced by him with success in certain herds of breeding cattle in Argentina between 1922 and 1939. Then it became impossible to observe these measures for one year and a spectacular rise occurred in the incidence of the disease.—G. P. MARSHALL.

SVEDBERG, B. (1949.) Virulens och immuniserande egenskaper hos tuberkelbaciller av olika kliniskt ursprung. [Virulence and immunizing capacity of various strains of tubercle bacilli.]—*Nord. Med.* 41, 1060. 2490

The immunizing capacity of tubercle bacilli varies with their clinical source and is greatly influenced by physical and chemical factors. In g. pigs, variations in immunizing capacity can be demonstrated with tubercle bacilli killed by ultra-violet rays, but not with identical bacilli killed with 25% urea.—W. R. BETT.

PATERSON, A. B. (1948.) The production of bovine tuberculoprotein.—*J. comp. Path.* 58, 302–313. 2491

The yield of a purified protein derivative tuberculin from the Weybridge strain of bovine *Mycobacterium tuberculosis* AN 5 was greater in a 10% than in a 6% glycerol medium.

In g. pigs which have been sensitized three weeks previously by intramuscular injection of 0.5 ml. of a suspension of live avian type organisms (14-day culture), bovine type P.P.D. in concentrations of 4.5 mg. per ml. produced reactions equivalent to those of human type P.P.D., in concentrations of 1.5 mg. per ml.

Since it was previously found [V.B. 20, 265] that bovine type P.P.D. and human type P.P.D. produced equal responses in g. pigs sensitized with bovine type tubercle bacilli, it was anticipated that bovine type P.P.D. would prove superior to the human type material now in general use (because of its ease of production) in detecting infection in cattle. Only field trials could confirm this.

The increased yield in the 10% glycerol medium over that in the 6% glycerol medium was related to the pH maintained in this medium, which was optimum for the autolysis of the cells, and not to increased overall growth of the culture or to greater extraction efficiency during the steaming process in the final stages of production.

—NESTA DEAN.

HAUDUROY, P. (1949.) Acid-alcohol resistance of tubercle and paratubercle bacilli.—*Bull. W. H. Org.* 2, 310–316. 2492

Mycobacteria, non-resistant to acid-alcohol treatment, are young or very old forms; adult forms are resistant. Elements which are not resistant may be either true bacilli or a substance the nature of which cannot be distinguished under the microscope. Studies on suppression of acid-alcohol resistance and on induced resistance were discussed.—W. R. BETT.

PESCATORE, H. (1949.) Weiterzüchtung von 14 Paratuberkulose-Stämmen (Johne'sche Bazillen). [Cultivation of 14 strains of *Mycobact. johnei*.]—*Berl. Münch. tierärztl. Wschr.* No. 6, pp. 72–75. 2493

Growth of 14 strains on certain well-known media was described.—W. R. BETT.

ALBORNOZ, J. E. (1949.) Estudio comparativo entre la paratuberculosis bovina y la lepra humana. [Comparative study between Johne's disease in cattle and leprosy in man.]—*Rev. Fac. Med. vet., Bogotá*, 18, 145–149. 2494

After a brief discussion of the literature on Johne's disease, the author states that in eight cases he saw degeneration of the sciatic nerves and the brachial nerves especially the median. There was great increase of perineural, epineural and endoneural tissue, considerable oedema, congestion of capillary vessels, abundant petechiae and extrusion of inflammatory cells, lymphocytes, macrocytes, and fibroblasts. The nerve fibrils were atrophied and their tubules occluded. He attributes the muscular wasting symptomatic of Johne's disease to this neuritis. *Mycobacterium johnei* has many similarities to *M. leprae* both in appearance and staining, but the two diseases differ in that Johne's disease is

essentially a bowel disease of cattle, while leprosy attacks the skin and superficial lymph nodes and nerves but never the bowels. This polyneuritis, if general in John's disease is a point of similarity with leprosy.

—R. MACGREGOR.

MUSLU, Z., ESIN, I. & DEMIRER, F. (1946.) Sentetik Malleinin allerjik aktivitesi. [**Mallein, allergic properties of the synthetic product.**]—*Türk Veterinerler Cemiyeti Dergisi*. 16. 27–33. 2495

Mallein prepared on a synthetic medium and kept at laboratory temperature for eight years was still active even when diluted 1:500 on intradermal injection on glandered horses. Intradermal tests repeated at intervals up to two years on the same glandered horse gave similar positive reactions.—M. SERTEL.

PINI, T. (1947.) Le alterazioni del miocardio nelle forme croniche di mal rossino dei suini contraddistinte da endocardite. [**Lesions in the myocardium of pigs with chronic erysipelas characterized by endocarditis.**]—*Atti. Soc. ital. Sci. vet.* 1. 287–295. [English and French summaries.] 2496

In myocardium from eight pigs with endocarditis caused by a chronic form of *E. rhusiopathiae* infection P. observed isolated foci of various sizes, characterized by more or less advanced proliferation of the connective tissue. Some foci resembled adult connective tissue with few cellular elements and abundant collagenic stroma, some had infiltrations of lymphocytes, histiocytes and granulocytes. Changes in the muscle fibres were very slight. There was thrombo-necrotic arteritis of the smaller coronary vessels.—E. G.

SCHRÖTER, A. (1947.) Die künstliche Infektion des Schweines mit dem Rotlaufbakterium. [**Artificial infection of pigs with *Erysipelothrix rhusiopathiae*.**]—*Inaug. Diss., Leipzig*. [Abst. from abst. in *Berl. Münch. tierärztl. Wschr.* No. 7. pp. 80. (1948.)] 2497

An account of the inoculation of 52 pigs on 19 farms with living culture of *E. rhusiopathiae* and/or with antiserum. Details are given of the behaviour of the pigs so inoculated.—E. G.

FLÜCKIGER, G. (1948.) Neue Methoden zur Schutzimpfung gegen Schweinerotlauf in Sicht? [**Vaccination against *Erysipelothrix rhusiopathiae*.**]—*Schweiz. Arch. Tierheilk.* 90. 36–42. 2498

A general discussion of vaccination methods in use against swine erysipelas with emphasis on the adsorbed swine erysipelas vaccine.

—W. STECK.

SPARAPANI, J. C. (1947.) Listerellosis de las gallinas. [***Erysipelothrix (Listeria) monocytogenes* infection in fowls.**]—*Gac. vet. B. Aires* 9. 107–115. 2499

A general discussion on *Erysipelothrix* infection in fowls, including prophylactic measures. S. stated that large doses of sulphonamides, e.g. 0.5 g. of sulphapyridine twice daily to adult fowls cured the disease when given in the early stages.

—G. P. MARSHALL.

ROBERTS, S. J. & KIESEL, G. K. (1948.) **Treatment of pneumonia in cattle.**—*J. Amer. vet. med. Ass.* 112. 34–39. 2500

An account of the treatment of 47 cases of calf pneumonia with sulphamerazine, 32 with sulphamethazine and 14 with penicillin in addition to one of the former drugs; the recovery rates were 85.1%, 75.0% and 85.7% respectively.

Fifty cases of pneumonia in cattle over six months of age were treated with sulphamerazine, 74 with sulphamethazine and five with one of the two drugs in combination with penicillin. The recovery rates were 94%, 94% and 100% respectively. Of these cases 119 were diagnosed as haemorrhagic septicaemia, and in addition to pyrimidine treatment 77 were given haemorrhagic septicaemia serum and had a mortality rate of 6.2%. Forty-two cattle received no serum and had a mortality rate of 7.2%—E. J. H. FORD.

STEPHAN, S. A. R., KASCHULA, V. R., & CANHAM, A. S. (1949.) **Fowl cholera in the Malmesbury district of the Western Province.**—*J. S. Afr. vet. med. Ass.* 20. 138–141. 2501

An outbreak of fowl cholera is described. The strain of pasteurella involved was particularly virulent for ducks. Control measures consisted of a three months' quarantine on the infected farm, all the poultry being moved to an abattoir for slaughter. The viscera were destroyed and the carcasses kept in cold storage for four months and sold as ships' stores.—D. LUKE.

MITSCHERLICH, E. (1949.) **Precipitat-vakcina protiv kolere peradi.** [**An aluminium sulphate precipitated vaccine against fowl cholera.**]—*Bilten Vet.* 2. Nos. 2/3. pp. 1–22. [English, German and Russian summaries.] 2502

A killed aluminium adsorbate vaccine against fowl cholera was described. First inoculation with 2 ml. of this vaccine produced in pigeons an immunity lasting 45 days against subsequent infection with 100–1,000 M.L.D. Immunity lasting four months was achieved after a second vaccination of 2 ml.—E. G.

HILBERT, K. F. & KISER, J. S. (1948.) **Chemotherapy of duck diseases with sulfonamides.**—*Cornell Vet.* 38. 148–155. [Authors' summary and conclusions modified.] 2503

In three outbreaks of *Bact. anatispestifer* infection, involving 7,680 ducks, treatment with sodium sulfamethazine in the water resulted in decreases in mortality of 50–80%. In a single outbreak in a flock of 3,400 ducks, a reduction in mortality of nearly 40% was obtained by treatment with sodium chlorosulfadiazine. In all experiments the treated birds were livelier, had better appetites, and there were fewer cripples than in the untreated controls. In two outbreaks of fowl cholera involving 7,000 ducks, treatment with sodium sulfamethazine resulted in decreases in mortality of 73% and 66.5%. In a single outbreak of fowl cholera involving 4,200 ducks, treatment with sodium sulfamethazine caused a decrease in mortality of only 22%. In this outbreak, unsatisfactory blood levels obtained indicated low drug intake. This probably accounts for the small decrease in mortality between the treated birds and the controls. Two outbreaks of fowl cholera, involving 8,300 ducks, were treated with 0.07% chlorosulfadiazine in the feed. Decreases in mortality of 68.0% and 80.0% were obtained.

SCHAUB, I. G. (1948.) **The cultural differentiation of paracolon bacilli.**—*Johns Hopk. Hosp. Bull.* 83. 367–382. [Abst. in *Bull. Hyg., Lond.* 24. [No. 3.] 236. (1949), slightly modified.] 2504

The usual tests for the differentiation of paracolon bacilli from species of *Salmonella* and *Shigella*, namely the so-called IMViC reactions and tests on special media such as multiple-sugar agar, 10 per cent. lactose sugar and urea agar, proved in the author's hands to be too slow, or unreliable, or useful for detection of only a small proportion of paracolon strains. She therefore devised a test which depends on the failure of many paracolon strains to grow on SS agar or on a "coliform-inhibiting" (C.I.) agar containing beef extract (0.5 per cent.), sodium citrate (1.0 per cent.), sodium desoxycholate (0.25 per cent.), sodium thiosulphate (0.5 per cent.) and Trypticase (0.5 per cent.). Species of *Salmonella*, *Shigella* (most), *Proteus* and *Pseudomonas* grew well on these media. The inoculum is taken from a diluted culture and the reading is made in 24 hours. The production of H₂S is detectable on the SS medium.

Fifty-six paracolon strains, all except one being from human sources, were examined. They could be divided into four groups: Group I: Atypical coliform bacilli, i.e., they give the usual

reactions of coli-aerogenes-intermediate types but ferment lactose late or not at all; Group II: Produce H₂S, (A) Split urea, (B) Ferment sucrose: grow on tellurite agar, (C) Ferment malonate: liquefy gelatin slowly; Group III: Anaerogenic; Group IV: Utilize sodium malonate as sole source of carbon.

The organisms of Group I only are inhibited on SS or CI medium. Since the paracolon bacilli commonly found in normal stools and urine belong to this group, the test has proved a useful screen for their rapid elimination. A limited experience suggests that organisms of Group IIA, III and IV, which have been isolated from patients with diarrhoea or gastroenteritis and not from normal stools, may be the cause of intestinal disease.

HEPDING, L. (1947.) **Spinale Lähmung infolge Paratyphus abortus equi-Abszess beim Pferd.** [Spinal paralysis as a result of *Salmonella abortus-equi* infection in a horse.]—*Berl. Münch. tierärztl. Wschr.* No. 1. pp. 3–5. 2505

A description of spinal nerve paralysis in a horse resulting from inflammation of the 16th and 17th thoracic vertebrae and of the dura mater. It was stated that the cause of the inflammation was a retropleural abscess from which *S. abortus-equi* was isolated.—E. G.

VERGE, J. (1949.) **Le rôle de *Salmonella abortus equi* en nosologie humaine et vétérinaire.** [*Salmonella abortus-equi* in man and animals.]—*Rev. Path. comp.* 49. 643–646. 2506

S. abortus-equi infection seems to be on the increase in France as in other countries. It was found in horses of all ages and both sexes, causing either a septicaemia or localized infection. Agglutination tests carried out in Brittany, gave titres of over 1 : 330 in 63% of the 174 privately owned stallions in one administrative department, and titres of over 1 : 530 in 85% of 235 State-owned stallions. The occurrence of *S. abortus-equi* in birds has been reported several times. It has also been found to be the cause of "food poisoning" in human beings, in some cases after ingestion of horse meat or horse meat products.—A. MAYR-HARTING.

BRUNER, D. W. & MORAN, A. B. (1949.) ***Salmonella* infections of domestic animals.**—*Cornell Vet.* 39. 53–63. 2507

A table is given of the number of salmonella cultures examined and correlated with the source; man, fowls, other animals, water and food. An examination of 2,788 cultures from salmonella outbreaks occurring in all parts of the U.S.A. in animals other than man and fowls over the past 16 years is dealt with. Tabulation

is made of zoological distribution with number of outbreaks and cultures examined.

The 55 strains of salmonella identified are tabulated further against the various animal species and the corresponding outbreaks and cultures enumerated. Elaboration of animal organism relationship is made relating to salmonella strains isolated per species of animal and *vice versa*.

Attention is drawn to the infection of household pets with salmonella organisms and to the possibility of their transmission to children.

99% of *Salmonella* types isolated from listed animals belong to either groups B, C, D, E or *S. worthington*; it is suggested that a polyvalent "O" antigen of these types might be of use in a study of salmonellosis in domestic animals.

—F. W. JORDAN.

DE MOULIN, F. (1949.) Oorzaken van het optreden van non-specifieke pullorumreacties. [**Causes of non-specific pullorum reactions.**]—*Tijdschr. Diergeneesk.* 74. 857-873. [English summary.] 2508

Non-specific reactions have been observed in Holland and are characterized by delayed appearance (2-5 min. in the rapid test), their granular character, their irregular occurrence and their high incidence in winter.

Tests were carried out using two antigens of varying pH, one of pH 5.6 and the other of pH 6.8. Positive reactions with the blood of known non-specific reactors were obtained only with the antigen of pH 5.6. Both antigens gave positive reactions with blood from fowls known to be infected with *S. pullorum*. The blood of a series of negative fowls was tested after administration of lactic acid, uric acid, sugar, potatoes, maize and meat. False positive reactions were obtained in some cases, but only when the antigen of pH 5.6 was used. No false-positive reactions were obtained when the antigen of pH 6.8 was used.—M. C.

NORDBERG, B. K. (1947.) En Salmonellosenzooti hos höns orsakad av *Salmonella thompson*. [**An outbreak of salmonellosis in fowls caused by *Salmonella thompson*.**]—*Skand. VetTidskr.* 37. 365-380. [Abst. from English summary.] 2509

An outbreak of *S. thompson* infection was observed on a poultry farm near Stockholm. *S. thompson* was isolated from 12 out of 45 fowls. Of agglutination tests with the serum of the remaining 5,667 fowls, 32 reacted to *S. thompson*.

N. believes that the infection was caused by feeding waste products from a grocer's shop which had included imported egg powder. The

infection was transmitted to human beings by consumption of slaughtered poultry.

N. gave a brief account of the literature on fowl salmonella infections communicable to man and discussed the pathogenicity of salmonella types in man in relation to fowls.—E. G.

LERCHE. (1949.) Die Abortus-Bang-Ringprobe nach Fleischhauer und ihr diagnostischer Wert. [**The ring test in diagnosis of *Brucella abortus* infection.**]—*Mh. Vet.-Med.* 4. 21-27. 2510

L. described the results of a modified "ring test" used for the detection of *Br. abortus* in milk samples from single cows and compared the test with the agglutination test. The "ring test" gave a greater number of positive reactions. It cannot be used when the fat content is under 1.5%.—MARCUS S. BROOKE.

JAKUBOWSKI, S. (1949.) Straty gospodarcze powodowane przez brucellozę u bydła rogatego. [**Economic losses caused by bovine brucellosis.**]—*Med. weteryn.* 5. 10-13. [English summary.] 2511

The financial losses inflicted by bovine brucellosis in Poland were estimated. 30% of the cows examined aborted, were sterile or gave birth to dead or non-viable calves as a result of *Brucella* infection. Two tables give details of 23,264 cows and show a loss of 144 calves. Milk losses are also estimated.—E. G.

VARDAR, A. E. (1946.) Memleketimiz sigirlarında Brucellosis Bang durumu ve savas usulleri. [**Present status of bovine brucellosis in Turkey and methods of control.**]—*Türk Veterinerler Cemiyeti Dergisi.* 16. 35-46. 2512

Some information was given about the occurrence of bovine brucellosis on government farms in Turkey. On one farm 22% of 123 adult cattle reacted to serological tests. From 1934 to 1945 blood sera were tested from 2,763 cattle, most of them from government breeding centres, as they passed a particular customs barrier, and 4.6% reacted. Out of 125 milk samples from these animals 3.2% were positive by whey agglutination, and the milk from four-fifths of these positive animals was infective to g. pigs. Some advice on conventional lines is given regarding control.—R. DURASAN.

VENZKE, W. G. (1948.) The differentiation of cattle with *Brucella abortus* infection titers and cattle vaccinated with *Brucella abortus* strain 19.—*N. Amer. Vet.* 29. 484-488. 2513

The author recommends that only those animals with a stabilized or declining blood

serum titre, as shown by two tests taken at 10 days' interval, should be vaccinated with strain 19.

As agglutinins do not persist in the udder of lactating animals longer than 90 days after vaccination with strain 19 the whey agglutination test can be used to detect a natural infection after this period.—J. I. TAYLOR.

VARDAR, A. E. & ESIN, I. (1947.) Türkiye sigırlarında bulaşıcı yavru atma hastalığının (Brucellosis Bang) Seroloji ze Allerji usullerile teshisi. [Diagnosis of bovine brucellosis by serological and allergic methods.]—*Türk Veterinerler Dernegi Dergisi*. 17. pp. 10–29. 2514

The authors emphasized the practical importance of the rapid plate agglutination test. There was agreement in nine out of ten cases between whey agglutination and the results of an allergic skin test.—R. DURASAN.

NILAKANTAN, P. R. & PANDE, P. G. (1948.) Investigation of contagious abortion in goats with special reference to isolation of *Brucella abortus* (Bang) from goats' milk.—*Indian J. vet. Sci.* 18. 61–67. 2515

Three goats at the Government Livestock Farm, Hissar, (Punjab) which had a history of abortion gave birth to kids 3–4 weeks prior to the work reported and were examined for brucellosis. The blood serum from each reacted at a high titre to the agglutination test and the organism was isolated from milk samples. The production of H_2S , growth in Huddleson's dye media and the results of agglutinin absorption test conformed to the characters of *Br. abortus*. —C. SEETHARAMAN.

GILMAN, H. L. & LEGROW, W. R. (1947.) Streptomycin in the treatment of experimental brucellosis of guinea pigs.—*Amer. J. vet. Res.* 8. 192–195. 2516

Treatment with streptomycin failed to overcome experimental brucellosis in g. pigs; a bacteriostatic effect was observed in some of the treated animals that had less extensive lesions than controls.—L. M. JONES.

GOLEM, S. B. (1943.) Memleketimizde insan ve ehli hayvanlarda *Brucella* bakımından serolojik araştırma. [Serological researches on brucellosis of man and animals in Turkey.]—*Türk Hıfıssıhha ve tecrübi Biyoloji Mecmuası*. 3. pp. 105–114. [French summary.] 2517

Reports the examination of 2,389 samples of serum from different parts of Turkey (percentage serologically positive given in brackets): viz. human 1,154 (5.98), horse 759 (40.7), mule 16 (62.5), cattle 285 (39.1), buffalo 31 (41.9), sheep 120 (13.3), goat 22 (50).

Most of the human sera were sent for Wassermann test and most of the horse sera for examination for dourine and glanders. The reason for the high titre of equine sera is a matter for speculation. Of 118 cows from one farm supplying milk and cream to Ankara, included in the 285, 60.17% gave positive reactions.

—F. C. MINETT.

KORIM, P. (1949.) Príspevok k brucelóze veterinárov. [Brucellosis in veterinarians.]—*Čas. československ. Vet.* 4. 201–209. [English and Russian summaries.] 2518

Of samples of blood serum from 138 Slovak veterinary surgeons 28 reacted to the rapid plate and 23 to the tube agglutination test and 32 to the complement-fixation test. Ten of the persons from whom the samples had been taken had at some unspecified time suffered from clinical forms of the disease. In 17 of the 138 persons allergic symptoms had occurred after contact with infective material.—E. G.

GALPINE, J. F. (1949.) A case of abortus infection treated with "Aureomycin".—*Brit. med. J.* June 11th. 1037–1038. 2519

A record of satisfactory treatment of a case of human brucellosis with aureomycin; sulphamethazine and streptomycin had previously given unsatisfactory results with the patient.

—K. B. SINCLAIR.

COCEANI, A. & SOLINAS, N. (1947.) Ricerche di agglutinine per le brucelle sul siero di sangue del cane in Eritrea. [Brucella agglutinins in the blood of dogs in Eritrea.]—*Boll. Soc. ital. Med. ig. trop., Eritrea*. 7. 163–166. 2520

In the course of a systematic investigation of the incidence of brucellosis in all types of domestic animals in Eritrea, the authors tested the agglutinin titres for *Br. melitensis* in the blood serum of 184 dogs. These belonged partly to Abyssinian, partly to European breeds, and partly consisted of cross-breeds between the two.

171 animals yielded negative reactions, in 13 the titres ranged from 1 : 100 to 1 : 25; none had a titre as high as 1 : 200.

The authors concluded, therefore, that under colonial conditions of close contact with human beings, the dog is capable of acquiring this disease, thus itself becoming a source of infection.—G. P. MARSHALL.

GOLEM, S. B. (1945.) Koyun ve keçi brusellozunda bilinmesi lâzım gelen bazı epidemiyolojik bilgiler. [Some epidemiological factors regarding sheep and goat brucellosis.]—*Türk Veterinerler Cemiyeti Dergisi*, 13. 46–51. 2521

Excretion of *Brucella* is usually more prolonged in infected goats than in infected sheep. In both species, however, the organisms are gradually destroyed in the body, the animals continuing to react serologically and allergically while infected. These tests, therefore, do not distinguish between excretors and non-excretors, though recent infections give higher serological titres than older ones. By 1945 four strains from man identified as *Br. melitensis* had been recovered.—R. DURASAN.

GOLEM, S. B. (1946.) Mandaların Tüla-re-miye olan hassasiyeti ve bu hayvanların, Tüla-reminin intisarındaki muhtemel rolü. [**Sensitivity of buffaloes to tularaemia and their probable role in spread of the disease.**]—*Türk Veterinerler Cemiyeti Dergisi*. 14. 20–26. [French summary.] 2522

A sample of river water artificially infected with *Brucella tularensis* kept at laboratory temperature was infective for mice for at least 26 days. Frogs kept in such water acquire a latent infection and their excretions contaminate water in which they are kept. Buffaloes can be infected intravenously, subcutaneously or by the mouth, but the infection was found to be non-fatal. They excrete the organism in fluctuating numbers in the urine, which was capable of infecting mice for at least 37 days after inoculation. Buffaloes so infected are a source of contamination of water as a result of wallowing.

—R. DURASAN.

GOLEM, S. B. (1945.) Lüleburgazda yeni bir tuleremi epidemisi. [**New epidemic of tularaemia in Lüleburgazda.**]—*Türk Ijiyen ve tecrübi Biyoloji Dergisi*. 5. 27–40. [French summary.] 2523

Tularaemia has been recognized in Turkey since 1936. In 1945 an epidemic was noted in a military garrison in Thrace from May to September. Fifteen cases, as well as three among civilians, occurred. Blood sera from 4 of 29 apparently healthy soldiers in the same squadron gave agglutination titres between 1 : 10 and 1 : 80 which suggested inapparent infections. All the cases had had contact with water from a certain stream, and it is noteworthy that during an outbreak of tularaemia in 1937 the water of this stream had been proved by g. pig inoculation to contain *Brucella tularensis*. Military horses which had had contact with this stream in 1945 showed no specific agglutinins, nor could the organism be found in *Stomoxys* flies collected from their stables. The organism could not be found in bed-bugs from the sleeping quarters of affected soldiers. Similarly, the liver and spleen

of hares caught in the neighbourhood were apparently free from infection [tissues sent in glycerol]. It is suggested that tularaemia is endemic among the civilian population of Lüleburgazda, existing in a mild form which rarely comes to notice, but the ways in which water may become contaminated are still obscure.—R. DURASAN.

NIETHAMMER, A. (1947.) Technische Mykologie. Hefen und Schimmelpilze. [**Mycology, yeasts and moulds.**]—pp. 268. Stuttgart: Ferdinand Enke. DM. 16.50. 2524

This useful book on yeasts and moulds consists of a general part, parts on morphology, chemical constituents of the fungous cell, enzymatic complexes, principles of physiology of fungi, antagonistic action and heredity, mutations and variations. The last section, the systematology of yeasts and moulds, forms the main part of the book. This section is conceived as an aid to the identification of yeasts and moulds for industrial laboratory workers. There is a bibliography of about a thousand references and an alphabetical index. Binding and paper are fair.—E. G.

SASLAW, S. & CAMPBELL, C. C. (1949.) A collodion agglutination test for histoplasmosis. —*Publ. Hlth. Rep., Wash.* 64. 424–429. [Authors' summary slightly modified.] 2525

In the use of the collodion agglutination test for the detection of antibodies in human sera it was shown that collodion particles sensitized with histoplasmin were agglutinated strongly in the presence of sera from all of three patients in the acute phase of histoplasmosis; the sera from three patients in the chronic stage of the disease gave no significant results. Weak (possibly nonspecific) agglutinations were observed in low dilutions in 30.4 per cent of a group of 197 healthy volunteers. Of the 60 persons giving weak agglutinations, 25 were from the positive skin-test group of 71 persons, and 35 were from the negative skin-test group of 126 persons. Similarly, 32.3 per cent of 235 serum specimens from persons not skin tested gave weak non-specific agglutinations. The correlation between skin tests and serum agglutination tests appears to be masked in normal persons by non-specific reactions.

The results obtained in the collodion agglutination test parallel those observed with yeast-phase antigens in the complement-fixation test. It is suggested that the collodion agglutination test be given further trial and study as a possible adjunct in the diagnosis of acute histoplasmosis.

EMMONS, C. W. (1949.) **Histoplasmosis in animals.**—*Trans. N.Y. Acad. Sci.* **11.** 248–253. 2526

Histoplasma capsulatum is responsible for histoplasmosis in both man and animals, and the detection of the fungus in animals in a given area provides a means of ascertaining the geographical distribution of the disease. This paper represents a brief account of histoplasmosis in animals, together with original observations on the isolation of *H. capsulatum* from the horse, dog, cat, rat, mouse and skunk. Reference is also made to histoplasmosis in laboratory animals.—CLIVE BRIGGS.

ARTIOLI, D. (1948.) Contributo alla conoscenza delle localizzazioni interne del farcino criptococcico (farcino renale). [*Histoplasma farcinosum* infection of internal organs.]—*Atti Soc. ital. Sci. vet.* **2.** 405–414. [French and German summaries.] 2527

The author described the P.M. examination of an eight-year-old horse with a generalized chronic infection and especially the histological appearance of the kidneys. Small greyish star-shaped or rounded foci were seen, marked by a great interstitial and adventitial proliferation of cells, especially histiocytic in nature. In the glomeruli there was a histiocytic form of proliferation. The author remarked on the disposition and diffusion of the proliferating process in the lumen of the dilated lymphatic capillaries.

—K. SLAVIN.

SOLIS, J. A. (1948.) **Some studies and observations on epizootic lymphangitis.**—*Indian Vet. J.* **25.** 1–14. 2528

Observations on 504 cases of epizootic lymphangitis in horses in the Philippine Islands were analysed, with reference to the effect or influence of breed, sex, age, colour, size, use of animal, etc. on the disease.—GAJINDAR SINGH.

GUSUININ, I. A. (1949.) [**Treatment of epizootic lymphangitis in horses with a preparation made from *Ranunculus* spp.**]—*Veterinariya, Moscow.* **26.** No. 5. pp. 25–28. 2529

An article extolling the value of a preparation made from *Ranunculus* spp. which is stated to possess bacteriostatic and fungistatic properties. It is stated to be of value in the treatment of the skin lesions of epizootic lymphangitis and also of several other specific infections which are named, e.g. foot and mouth disease, anthrax, haemorrhagic septicaemia, and swine erysipelas. [No critical work supporting these extravagant claims is given]. It is also said to be valuable in the treatment of a number of less specific diseases.—F. A. A.

IVANOV, X. (1949.) [**Pneumonia in cattle caused by spores of *Ustilago maydis*.**]—*C. R. Acad. Bulg. Sci.* **2.** 49–52. [In English.] 2530

An outbreak is described in cattle in Bulgaria, in the autumn of 1946, of a disease characterized by difficult breathing, dry cough, anorexia, emaciation, incapacity for work, and 28% eosinophilia. P.M. examination revealed general emphysema, small miliary nodules of the lungs and cloudy swelling of the myocardium. Histologically the miliary cellular nodules had the structure of actinomycotic nests. Bacteriological examination was negative. During the 1946 drought the food consisted only of "dusty" maize stems and foliage. This "dust" was maize smut spores (*Ustilago maydis*). Intratracheal injection of rabbits with these spores in thin aqueous suspension caused a pneumonia with marked eosinophilia and botryomycosis type of lesion.—W. R. BETT.

BORGEN, L. O. & GAUSTAD, V. (1948.) **Infection with *Actinomyces muris ratti* (*Streptobacillus moniliformis*) after bite of laboratory rat.**—*Acta med. scand.* **130.** 189–198. [In English Abst. from authors' summary.] 2531

A laboratory assistant developed signs of lymphangitis and lymphadenitis shortly after being bitten by a laboratory rat. On combined sulfathiazole and penicillin treatment the fever subsided at once. *Actinomyces muris-ratti* was isolated from blood cultures.

DAVIS, G. E. (1948.) **The spirochetes.**—*Ann. Rev. Microbiol.* pp. 305–334. 2532

This is a very useful review of the order Spirochaetales, covering the period up to April 1948. The basis of the new classification of this group of organisms is clearly explained.

The pathogenic members of the group, *Borrelia*, *Treponema* and *Leptospira* are dealt with in some detail, particular emphasis being given to new information on the role of animal reservoirs and invertebrate vectors. Recent advances in the therapy of *Borrelia*, *Treponema* and *Leptospira* infections are summarized. 131 references are listed.—T. W. F. PAY.

Speakers: ALSTON, J. M., JOSHUA, J. O., BORG-PETERSEN, C., BROOM, J. C., STUART, R. D., FIELD, H. I. & EDWARDS, J. T. (1949.) **Discussion on leptospirosis.**—*Proc. R. Soc. Med.* **42.** 707–720. 2533

Alston gave a general survey of the genus *Leptospira*. The sources, the route of infection and the forms which human infections may take were briefly outlined. Only two species, *L. canicola* and *L. icterohaemorrhagiae* have been identified in Great Britain, while at least ten

species are recognized on the Continent of Europe. Further, three species of leptospira, *L. grippo-typhosa*, *L. sejroe* and *L. bataviae*, unknown in Gt. Britain, occur abroad in rodents which are to be found in the British Isles, and two more species, *L. saxkoebing* and *L. ballum*, are found in Continental Muridae closely related to British species. A summary of the history and incidence of human leptospirosis in Gt. Britain was given.

Joshua presented an outline of the history, the incidence, the method of infection and transmission in dogs, and the public health aspect of canine leptospirosis in Gt. Britain. 100 blood samples taken at random from dogs of all ages and types yielded 43 with agglutinins against *Leptospira*. 31 of these gave a higher titre against *L. canicola*; 8 gave a higher titre against *L. icterohaemorrhagiae*; and 4 gave equally low titres against both species. Out of 61 blood samples from male dogs, 29 were positive; and of 39 blood samples from bitches, 14 were positive.

There was evidence to suggest that a sub-clinical leptospiral infection could occur in the dog, which was of considerable importance in considering the spread of infection. The figure of 43% reactors found in London suburban dogs agreed closely with the 52% reactors found by STUART [V. B. 17. 15] in Glasgow street dogs.

It was suggested that indirect dog to dog transmission via wet ground or water might occur in both *L. icterohaemorrhagiae* and *L. canicola* infections, and that the route of infection might be *via* the mucosa of the urino-genital tract rather than *via* the alimentary canal.

Borg-Petersen traced the occurrence of *L. icterohaemorrhagiae*, *L. canicola*, *L. sejroe*, *L. grippo-typhosa*, *L. bataviae* and *L. poi* infections in human beings in Denmark by serological tests, and showed in a table the respective incidence of jaundice in each type of infection.

L. icterohaemorrhagiae has been isolated from rats; *L. icterohaemorrhagiae* and *L. canicola* from dogs; *L. sejroe* and *L. ballum* from harvest mice; *L. saxkoebing* from harvest mice and wood mice; and *L. grippo-typhosa* from voles; while *L. bataviae* and *L. poi* have not been isolated from man or animals in Denmark.

A chart was given showing the seasonal incidence of the infections caused by the various types of leptospira. It is possible to correlate this incidence in many cases with a seasonal increase in the contact between man and the animal carriers (e.g. between agricultural workers and harvest mice carrying *L. sejroe* at harvest time).

Broom made a general survey of the position. Two human fatal cases of *L. canicola* infection have occurred, both of which were suffering from pre-existing renal disease. Only *L. icterohaemorrhagiae* and *L. canicola* have been found to cause human infections in Great Britain. No serum samples with positive agglutinin reactions against *L. grippo-typhosa*, *L. pomona*, *L. bataviae* and *L. sejroe* have been found among those taken from human cases of aseptic meningitis. It was suggested that a survey of the rodent carriers of these types of leptospira in Gt. Britain might yield valuable information of the extent to which the infection occurs.

Stuart supplied serological evidence of *L. canicola* infection in 90% of 130 dogs with detectable renal disease, but only in 23% of 140 other dogs. He described three stages:—invasive, primary renal and secondary renal.

Field described a strain, believed to be *L. icterohaemorrhagiae*, isolated from a 14-day-old calf which died after a five-day illness. Another calf on the same farm with similar symptoms recovered after treatment with *L. icterohaemorrhagiae* hyperimmune serum. Rats trapped on the farm were carrying leptospira.

—T. W. F. PAY.

HOLM, H. (1946.) Leptospirosens Klinik. [Leptospirosis in dogs.]—*Maanedsskr. Dyrlæg.* 58. 189–214. [Abst. from English summary.] 2534

H. stated that leptospirosis in dogs in the Copenhagen district was very frequent. Symptoms were often so slight that they were overlooked. Of 60 cases of leptospirosis examined during 1945 in a veterinary hospital 57 were caused by *Leptospira canicola* and 3 by *L. icterohaemorrhagiae*. Twenty-eight dogs died or had to be killed and the remaining 32 recovered.

—E. G.

ARMBRUST, K. (1949.) Über einen Fall von Canicolaleptospirose beim Menschen. [A case of *Leptospira canicola* infection in man.]—*Dtsch. med. Wschr.* 74. 153. 2535

A case of *L. canicola* infection in a 16-year-old girl is described in detail. It was established that the patient had had contact with two dogs. Although, according to their owners, neither of the dogs had ever been ill, they yielded positive titres of 1:128,000 and 1:1,000 respectively to *L. canicola*.—E. G.

BUCHANAN, R. E., ST. JOHN-BROOKS, R. & BREED, R. S. (1948.) International Bacteriological Code of Nomenclature.—*J. Bact.* 55. 287–306. 2536

This is a detailed account, prepared by the Judicial Commission of the International Association of Microbiologists (of which Buchanan is the chairman) and approved and recommended by the Nomenclature Committee (of which the other two authors are permanent secretaries), of a precise system of nomenclature for the classification of bacteria, related micro-organisms and viruses, based on the system used by botanists and zoologists and almost universally accepted by bacteriologists of all nations.

The fundamentals of this system comprise principles, rules and recommendations. The principles constitute the basis of the rules and recommendations; the rules are intended to facilitate the application of the principles in the co-ordination of the existent nomenclature and future additions to it; and the recommendations consider subsidiary points concerned with increased uniformity and precision, particularly in future nomenclature.

Provisions, made by the Nomenclature Committee for the amendment of rules, special exception to rules, and their interpretation in doubtful cases, are also delineated. Separate sections are devoted to the rules governing the designation of type cultures, publication of names of taxonomic groups, genera and species, citation of authors and names, rejection and replacement of names, and orthography and gender of names. The last of the provisions describes the constitution and functions of the Nomenclature Committee and its Judicial Commission.—R. O. MUIR.

ANON. (1949.) **Directory of collections of micro-organisms maintained in the United Kingdom and Crown Colonies.**—pp. 25. British Commonwealth Collections of Micro-organisms. H.M.Stat. Off. Issue No. 1. 6d. net. **2537**

The Specialist Conference (Aug. 1947) on Culture Collections of Micro-Organisms of the British Commonwealth Scientific Official Conference 1946, recommended that a Directory of

important culture collections of the Commonwealth should be prepared. This Directory includes the names of various commercial laboratories, university departments and research institutions in the United Kingdom and Crown Colonies, which maintain collections of fungi, yeasts, moulds, bacteria, viruses and protozoa. The fields of interest covered by these collections are also indicated and an index of the main types of organisms is given. This directory does not include the genera and species kept in the collections; these are to be issued at a later date.—L. P. JOYNER.

MESROBEANU, L., DORIN, E. & MITRICA, N. (1948.) Contribution à l'étude des phosphatases bactériennes. [A study on bacterial phosphatases.]—*Arch. roum. Path. exp. Microbiol.* **15**: 25–63. [In French. Russian and English summaries.] **2538**

The work was based mainly on a *Bact. coli* (R) but *Salmonella typhi-murium*, *S. enteritidis*, *Shigella flexneri*, *Clostridium welchii*, *Micrococcus lysodeikticus*, *Corynebact. diphtheriae*, *Chromobacterium prodigiosum*, *Bacillus subtilis*, *Proteus vulgaris*, *Staphylococcus aureus*, *Staph. albus*, and *Staph. citreus* were also examined. There was a preferential liberation of P from β -glycerophosphate at pH 5–6 (and in some cases at pH 3 also).—M. WOODBINE.

KÖNIG, H. & WINKLER, A. (1948.) Über Einschlüsse in Bakterien und ihre Veränderung im Elektronenmikroskop. [Inclusion bodies in bacteria and their appearance under the electron microscope.] *Naturwissenschaften*. **35**: 136–144. **2539**

An account of inclusion bodies demonstrable in bacteria by means of the ultramicroscope and the electron microscope and of principles involved in the use of the latter instrument in bacteriology.—R. ROSS-RAHTE.

See also absts. 2570 (culture filtrate of *B. subtilis* and rabies virus); 2652 (anthrax); 2661 (periarthritis nodosa in pigs); 2689 (disinfectants); 2738 (sterilization of *Salmonella* infected meat); 2739 (*Salmonella* food poisoning); 2752 (*Histoplasma jarciminosum*); 2762 (report, Canada); 2763 (report, New Zealand); 2765 (report, India); 2766–2767 (reports, Ceylon); 2769 (report, Nyasaland); 2770 (report, Swaziland); 2772–2773 (reports, Bechuanaland); 2774 (report, Northern Rhodesia); 2777 (report, British Honduras); 2778 (report, Bermuda); 2781 (report, Cyprus); 2782 (report, Holland); 2783–2785 (reports, U.S.A.) 2787 (book, bacterial toxins).

DISEASES CAUSED BY PROTOZOAN PARASITES

MUSLU, Z. (1946.) Yeni usülde Durin antigeni hazırlanması. [New method for preparing dourine antigen.]—*Türk Veterinerler Cemiyeti Dergisi*, **14**: 35–41. **2540**

The antigen is prepared from the blood of dogs injected with *T. equiperdum*. When the blood contains large numbers of parasites, it is

taken into citrate and mixed with a suitable concentration of blood serum of a rabbit which has been repeatedly injected with dog red cells. The mixture is kept at 42° C. when the red cells are agglutinated and sink, while the parasites rise to the surface. This separation can be assisted by centrifuging. The surface film is then mixed with acetone and dried.—N. KARAMIZRAK.

HOARE, C. A. (1949.) Akinetoplastic strains of *Trypanosoma evansi* and the status of allied trypanosomes in America.—*Rev. Soc. Mex. Hist. Nat.* **10**. 81–90. 2541

H. discussed ways in which *T. evansi* may lose its kinetoplast, e.g. by drug administration and by inoculation of an akinetoplastic strain. The condition resembles a mutation, the strain breeding true for long periods.

The history of *T. equinum* was given and there seems to be no valid reason why *T. venezuelense* and *T. hippicum* should be separated specifically from *T. evansi*.—JAS. G. O'SULLIVAN.

I. KRANEVELD, F. C. & DJAENOEDIN, R. (1948.) Proeven over de gevoeligheid voor surra van door behandeling met naganol en arsocoll van deze ziekte genezen paarden. [Susceptibility to surra of horses recovered from this disease and treatment with naganol and arsocoll].—*Ned.-ind. Bl. Diergeneesk.* **55**. 165–174. [Abst. from English summary.] 2542

II. KRANEVELD, F. C. & MANSJOER, M. (1948.) Proeven over vervangproducten voor naganol bayer en arsocoll. II. Tryparsamide. [Experiments with substitutes for naganol and arsocoll. II. Tryparsamide.] *Ibid.* 203–209. 2543

I. Horses treated with naganol 3 g. intravenously and "arsocoll" [atoxyl] 3 g. subcutaneously at the time when trypanosomes were very numerous in the peripheral blood proved to be normally susceptible three months later to re-infection with the same strain of *Trypanosoma evansi*. There was no evidence of immunity.

II. The results of tests made on artificially infected g. pigs are tabulated. Atoxyl was compared with tryparsamide in doses varying from 0.5 to 9 mg. given subcutaneously.—M. C.

VOGELSANG, E. G. & DE ARMAS, J. (1946.) Observaciones con el *Trypanosoma venezuelense*, Mesnil 1910. [Experiments with *Trypanosoma venezuelense* and *T. equinum*.]—*Rev. Med. vet. Parasit., Caracas* **5**. 39–43. 2544

Four cattle were inoculated with blood from horses infected with *Trypanosoma equinum* and trypanosomes were observed in their blood for periods up to 110 days after inoculation. None of the cattle had symptoms. The possibility of cattle behaving as reservoirs of infection for horses was suggested.—M. C.

LAUNOY, L. (1945.) Distinction, par l'action des diamidines entre la chimio-résistance naturelle, présentée par *T. congolense* et la chimio-résistance acquise par *T. annamense*. [The action of diamidines in distinguishing

between natural drug resistance of *Trypanosoma congolense* and the acquired drug resistance of *T. annamense*.]—*Bull. Soc. Path. exot.* **38**. 37–42. 2545

L. discussed the trypanocidal activity of three diamidines:—4 : 4'-diamidino-stilbene, 4 : 4'-diamidino-diphenoxypropane and 4 : 4'-diamidino-diphenoxypentane on *T. congolense* and *T. annamense* in g. pigs and mice, comparing his findings with those of Lourie and Yorke [see also YORKE, *V.B.* **14**. 431] and Daubney and Hudson [*V.B.* **12**. 431].—S. BRIAN KENDALL.

FAIRBAIRN, H. & CULWICK, A. T. (1947.) The modification of *Trypanosoma rhodesiense* on prolonged syringe passage.—*Ann. trop. Med. Parasit.* **41**. 26–29. 2546

Polymorphic forms persist after prolonged cyclical passage, but not after syringe passage, the latter eventually consisting only of long forms. These latter become more sensitive to arsenical drugs and should not be used in drug assays.—JAS. G. O'SULLIVAN.

CURASSON, G. & MORNET, P. (1948.) *Trypanosoma vivax-cazalboui*. [Infection with *T. vivax-cazalboui*.]—*Rev. Élev. Méd. vét. Pays trop.* **2**. 225–235. 2547

The susceptibility of horses, sheep, goats and cattle and of various laboratory animals is described. A strain from a hedgehog became established in *Cercopithecus* (an old-world monkey) and passage was obtained in the rat and g. pig.—JAS. G. O'SULLIVAN.

LUQUE, J. M. S. (1948.) Contribución al diagnóstico de la leishmaniosis canina. [The diagnosis of *Leishmania* infection in dogs.]—*Bol. Inf. Col. Vet. Esp., Supl. cient.* **2**. No. 8. 1–21. 2548

Eleven dogs with the visceral (*L. canis*) and 14 with the cutaneous (*L. tropica*) form of the disease were studied.

The visceral form is characterized by insidious onset, slight irregular fever, anorexia, loss of weight due to generalized muscular atrophy, progressive paresis with characteristic lumbar kyphosis. The skin, in this form, typically presents alopecia and dry, branny dermatosis, the latter being almost devoid of itching. Early involvement of superficial lymph nodes, mostly symmetrical, is a valuable diagnostic sign.

The parasites, in this form, are found in the tissues in the following order of frequency: bone marrow, spleen, lymph nodes, lymph vessels, liver and skin. The author therefore considers only sternal, and possibly lymph-node, puncture to be of value.

The most susceptible laboratory animals are white rats and Macedonian marmots, *Citillus citillus*.

Serologically, both the formol-gel and the serum flocculation tests are positive instantaneously, or within the first 10 min. (maximum 1 hour), in this form.

The cutaneous form, which is more benign, presents the following differential clinical features: little change in the general condition of the animal, with appetite normal or only slightly impaired; lack of alopecia or eczematous dermatosis; cutaneous lesions in the form of ulcers (only very rarely nodules) situated on the border and outer aspect of the ears, the tip of the tail, the extremities, the nostrils and the skin covering prominent bones. These ulcers are preceded and accompanied by intense pruritus, by changes in the satellite lymph nodes, and occasionally by patches of scleroderma (5 cases), keratoconjunctivitis and lesions at the base of the claws.

In this form, the parasite can be demonstrated in the ulcers and in the lymph nodes. The only successful methods here are curettage and, better still, biopsy.

The serological signs are less marked than in the visceral form: the formol-gel test is positive in up to 2 hours, whereas serum flocculation gives a positive result either instantaneously or at a shorter time interval than the formol-gel test, in the majority of cases.—G. P. MARSHALL.

ANON. (1948.) La trichomonose en zone d'occupation française en Allemagne. [*Trichomoniasis in the French zone of Germany*.]—*Bull. Off. internat. Epiz.* 29. 188–189. 2549

A brief note on trichomoniasis in the French zone of Germany.—JAS. G. O'SULLIVAN.

FRIDRICHOSZKY, L. & PELLÉRDY, L. (1949.) Neotodorit als Heilmittel der Rinderkokzidiose. [*Neotodorit as a remedy in cattle coccidiosis*.]—*Acta vet. hung.* 1. 110–112. [In German.] 2550

Neotodorit (a bismuth in oil preparation), used in the treatment of dysentery in cattle caused by coccidia, was introduced intramuscularly. In all cases the bloody diarrhoea ceased and faeces became normal after two days, oocysts almost entirely disappeared, appetite improved, and the animals completely recovered clinically. P. reports elsewhere that neotodorit failed to prevent the development of intestinal and liver coccidiosis in rabbits when administered simultaneously with infection or when given repeatedly.—C. HORTON SMITH.

JIROVEC, O. (1949.) Chemotherapie der Kokzidien. [*Chemotherapy of coccidiosis*.]—*Schweiz. Arch. Tierheilk.* 91. 396–397. 2551

Multiple therapy with a mixture of atebirin, phenothiazine, and sulphaguanidine is sound practice in the treatment of coccidiosis. A daily dose of one tablet per kg. body weight containing 0.05 g. atebirin, 0.3 g. phenothiazine and 0.15 g. sulphaguanidine was administered orally for 6–8 days to dogs and appeared to have prophylactic and curative properties.—L. P. JOYNER.

KOTLÁN, A. & PELLÉRDY, L. (1949.) A survey of the species of *Eimeria* occurring in the domestic rabbit.—*Acta vet. hung.* 1. 93–97. [In English.] 2552

A critical survey of the systematics of seven species of coccidia occurring in the rabbit. A key to the species of *Eimeria* in rabbits is included. As so frequently happens there is some overlapping which can only be remedied by the strict enforcement of Article 35 of the International Rules of Zoological Nomenclature, e.g. the case of *E. piriformis* which was the name proposed by Kotlán & Pospesch in 1934 for a new *Eimeria* species described from the domestic rabbit. The same name was proposed by the French authors, Marotel & Guilhon, in 1941 for what is apparently the same species of the domestic rabbit and it seems evident that *E. piriformis* Marotel & Guilhon 1941 as homonym of *E. piriformis* Kotlán & Pospesch 1934 is to be rejected. As the oocysts of *E. media* and *E. irresidua* closely resemble in their morphology those of *E. stiedae* all the developmental stages of *E. stiedae* were studied and are considered here in relation to species determination.

—C. HORTON SMITH.

LEIPER, J. W. G. (1949.) Mepacrine hydrochloride in experimental coccidiosis in chickens. [Correspondence.]—*Vet. Rec.* 61. 510. 2553

L. failed to confirm Wilson's findings that mepacrine hydrochloride was of value in the treatment of caecal coccidiosis in chickens. Mepacrine hydrochloride was used in the drinking water at concentrations of 0.004%, 0.022% and 0.1% and treatment was continued for seven days. For comparison in the three experiments described parallel groups were treated with 0.2% sulphamethazine. Mepacrine used at the above concentrations had no curative effect, whereas sulphamethazine afforded complete protection.

—C. HORTON SMITH.

DEARBORN, E. H. (1946.) Filtrable agents lethal for ducks.—*Proc. Soc. exp. Biol., N.Y.* 63. 48–49. [Abst. from author's summary.] 2554

Filtrable agents, lethal for ducks and unaffected by antimalarial drugs, were obtained by Seitz filtration of plasma from ducks with

Plasmodium lophurae, *Pl. cathemerium*, *Pl. relictum* or *Pl. elongatum* infections. Attempts to free the plasmodia from the filtrable agent failed.

SWELLENGREBEL, N. H. (1949.) **Stages in the development of collective immunity in malaria.**—*Doc. Neerl. Ind. Morb. Trop.* **1.** 165–174. [In English.] **2555**

New Guinea is the most malarious island in the Malay Archipelago, its records showing all gradations from almost no collective immunity to a stage more advanced than any known in Western Indonesia.—W. R. BETT.

SAGUNAY, R. A. (1946.) Canakkale—Kumkale çayirlarında beygir sıtması ara konakçısı. [Vector of equine piroplasmosis in Canakkale (Turkey).]—*Askeri vet. Mecmuası*, **24.** 32–36. [English and French summaries.] **2556**

Ticks were collected from horses, tortoises and pastures, and examined by naked eye and with low-power lens. The 123 adult specimens observed, which included 24 females, were all of *Hyalomma* species. Piroplasmosis in horses in the region named seems to be transmitted by *H. dromedarii*.—H. KURTPINAR.

POU, M. C. (1948.) Tristeza. (Piroplasmosis. Babesielosis. Anaplasmosis.) [“Tristeza” (piroplasmosis, babesiasis, anaplasmosis).]—*Rev. Med. vet., Montevideo* **4.** 829–847. **2557**
“Tristeza,” “tick fever” and “piroplasmosis” are the names applied collectively by the stock raisers of the Plate River countries to infections with *Babesia bovis*, *B. bigemina* and *Anaplasma marginale*. The points of similarity and difference between the three entities were examined in some detail, mainly from the clinical point of view.—J. T. DONE.

DSCHOUNKOWSKY, E. (1948.) Les foyers passifs et actifs des piroplasmoses ovines et l'anachromatisme des agents infectants dans certains régions enzootiques. [Active and passive foci of ovine piroplasmosis and anachromatism of infective agents in certain regions.]—*C.R. Acad. Sci., Paris*. **226.** 1315–1316. **2558**

Having had experience of piroplasmosis in Eastern Europe, Central Asia and Persia, D. compared his own observations with those of workers in Africa and divided the different foci of ovine piroplasmosis into three categories:—(1) an active type which is widespread in Transcaucasia, the Danube Basin and the Adriatic region and occurs annually among both young and old sheep, the first attack conferring no protection against subsequent infections; (2) an enzootic type found in North Africa, characterized by a very marked state of premunition; after the first infection the animals are protected

against further attacks of the disease; (3) a third type of enzootic focus in Madagascar where no signs of the disease are to be found. The animals are apparently normal and parasites cannot be found in the blood, although one case has been reported where splenectomy was followed by the appearance of *Babesia ovis*. D. supposes from this that the animals of Madagascar are in a strong state of premunition from birth. The question of how the infection is transmitted if the parasites can never be found therefore arises and the suggestion is made that the parasites are in an unstainable form.

—L. P. JOYNER.

GAYOT, G. (1946.) Infection expérimentale du chacal (*Canis lupaster algirensis* Wagner) par piroplasma canis. [Experimental infection of a jackal with *Babesia canis*.]—*Arch. Inst. Pasteur. Algér.* **24.** 46–50. **2559**

A jackal became infected after inoculation with blood from a dog infected with *Babesia canis*. The infection was passed from this animal through four other jackals in succession.

—P. M. JAMES.

SERGEANT, ED., DONATIEN, A. & PARROT, L. (1948.) Réflexions sur la nomenclature zoologique à propos de l'espèce *Piroplasma annulatum*. [Nomenclature of *Theileria annulata*.]—*Arch. Inst. Pasteur Alger.* **26.** 357–373. **2560**

It is difficult, if not impossible, to establish the identity of *Theileria annulata* because the descriptions given in the original papers suggest that Dschunkowsky was dealing with a mixture of three species—*Th. mutans*, *Th. dispar* and *Anaplasma marginale*. Further, D.'s researches were very superficial by modern standards and he omitted to study many of the important features used in characterizing the piroplasms, e.g. the pathogenicity and immunology. There is no description of the life-cycle in the second host for the simple reason that he does not even mention the second host.

The paper is fully annotated and includes tabulated comparisons of the species in question.

—F. B. LEECH.

BABOSHINA, N. A. (1949.) [Anti-reticulo-endothelial-cytotoxic serum (ACS) in cattle theileriasis.]—*Veterinariya, Moscow*. **26.** No. 7. p. 9. **2561**

Theileria annulata infected cattle were injected with antireticulo-endothelial-cytotoxic serum in addition to drug treatment [drugs not stated]. It is stated that lactation quickly returned to normal.—F. A. A.

TÜDZIL, A. N. (1946.) *Theileria annulata*'nin (Sigir Theileriose'unun) memleketimizdeki durumu ve en belirgin tedavi metodu hakkında rapordur. [Status of *Theileria annulata* in Turkey and treatment of theileriasis].—*Türk. Veterinerler Cemiyeti Dergisi*. 14. 8–20. 2562

Theileriasis, due to *Th. annulata*, is a common disease of cattle in Turkey. Affected animals are feverish (40°–42° C., with high pulse rate), have diarrhoea and sometimes nervous symptoms. The urine is free from haemoglobin. Death often occurs within a few days, while cases with a longer course tend to develop jaundice. P.M. there are abomasal haemorrhages, intestinal ulceration and subcutaneous infiltration. The parasite completes its life cycle in *Boophilus annulatus* and *Hyalomma aegyptium*. *H. punctata* is a doubtful transmitter. Treatment consists of the intravenous injection of 75 ml. of 2% solution of trypanflavine, repeated after three days.—H. KURTPINAR.

MOTT, L. O. & GATES, D. W. (1949.) The production of an antigen for anaplasmosis complement-fixation tests.—*Vet. Med.* 44. 296–299. 2563

See also absts. 2608 (parasitological investigations); 2611–2613 (trypanosomiasis and tsetse flies); 2656 and 2746 (trichomoniasis); 2761 (report, London School of Hygiene & Tropical Medicine); 2768 (report, Uganda); 2769 (report, Nyasaland); 2770 (report, Swaziland); 2771 (report, East Africa); 2772–2773 (reports, Bechuanaland); 2774 (report, Northern Rhodesia); 2777 (report, British Honduras).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

TRAUB, E. & MÖHLMANN, H. (1946.) Untersuchungen über immunologische Varianten der Typen A und B des Maul- und Klauenseuchevirus. [Immunological variants of types A and B of the foot and mouth disease virus].—*Berl. Münch. tierärztl. Wschr.* No. 1. pp. 1–5. 2564

In complement-fixation tests and in immunization experiments it could be shown that many strains of F. and M. disease virus deviate immunologically from the standard strains used for vaccine production. The variants of type A were closely related to one another and to the standard strain. Type B, on the other hand, seems to be very unstable; three serological subgroups of B-variants could be established; in these, the variant-specific component of the antigen was much more marked than the type-specific one, and vaccination with one variant conferred only a small degree of immunity against infection with other variants. The existence of these type B variants must be considered in the production and application of vaccines.

—A. MAYR-HARTING.

I. FREDERIKS, H. H. J. (1949.) Het aantonen van complement bindende stoffen ter bepaling

The authors described the production of antigens for anaplasmosis complement-fixation tests. The best animals for antigen production are normal calves 12–18 months old which have been splenectomized 30–60 days previously. Several blood passages are usually necessary to obtain a sufficiently high percentage of infected red cells. Washed erythrocytes are used and large infective doses can thus be injected intravenously without undue toxic reactions. The blood is harvested soon after the maximum degree of red cell parasitization is reached.

The citrated blood is centrifuged and the plasma removed. The cells are washed six times in physiological saline, and then added to 30 volumes of CO₂-saturated ice-cold distilled water. After being kept in a refrigerator overnight, the precipitate is washed by centrifugation in ice-cold distilled water; it is measured, the acidity neutralized with 1.2% sodium bicarbonate and physiological saline added to make a standard concentration of antigen equal to three times the packed precipitate volume. This finished product is lyophilized, sealed *in vacuo* and stored at –50° to –70° C.—L. P. JOYNER.

van het infectietype in bloedserum van immune runderen. [Complement-fixation test in immune cattle in the diagnosis of the type of F. & M. disease infection].—*Tijdschr. Diergeneesk.* 74. 779. [English, French and Spanish summaries.] 2565

II. FREDERIKS, H. H. J. (1949.) Het aantonen van complementbindende stoffen ter bepaling van het smetstof-type, in bloedserum van immune runderen. [Demonstration of antibodies in the serum of immune cattle by complement fixation in F. & M. disease].—*Ibid.* 839–848. 2566

I. A preliminary note on the work reported in II, drawing attention to the possible use of the method in F. & M. disease, vesicular stomatitis, tuberculosis and Johne's disease.

II. Noting the absence of haemolytic complement from bovine serum, F. used unheated bovine antiserum in complement-fixation tests with bovine F. & M. disease virus in 1 : 5 suspension. Type specific antibody was demonstrated in sera from cattle three weeks after O type infection, and antibodies to both O and A types of virus in sera of cattle which had received an OA bivalent vaccine. A bivalent bovine

hyperimmune serum of OA type also gave good fixation with O and A antigens. G. pig protection tests with these sera, using g. pig adapted virus, revealed the presence of antibody even in the serum from the vaccinated group. Heterologous antibody such that 2 ml. of serum gave some protection against A type virus was found in the serum of cattle which had recovered from O type infection.—J. B. BROOKSBY.

STAFFE, A. & DARGUZAS, V. (1949.) Über die Blutkatalase künstlich mit Maul- und Klauenseuchevirus infizierter Rinder. [Blood catalase in cattle experimentally infected with foot and mouth disease.]—*Schweiz. Arch. Tierheilk.* **91**, 522–531. [French summary.] 2567

Catalase was determined by the method of Bach-Zubkova. In a first group of 12 oxen infected with a highly virulent strain, 24 hours after inoculation the blood catalase had risen in one case by 1.9%, and fallen in all the others by 10.9, 17.6, 19.3, 20.7, 23.4, 24.4, 24.9, 25.0, 32.5, 45.7 and 53.8% respectively. In a second group of 8 oxen examined 20 hours after the same inoculation the reduction of catalase was much less pronounced, only 5.9% in the average. In a third group of tuberculous cows in reduced condition inoculated with a less virulent strain blood catalase determined 24 hours after the inoculation was increased by 6.7–28.2% (average 15.9).—W. STECK.

THOMAS, A., SALOMON, L. & SALOMON, L. (1948.) Recherches préliminaires sur la culture en masse du virus de la fièvre aphteuse, inoculé, au foetus de vache, entreteñu en survie par perfusion aseptique. [Mass-cultivation of the virus of foot and mouth disease in a bovine foetus.]—*C.R. Acad. Sci., Paris.* **227**, 310–311. 2568

The authors carried out 21 experiments using a perfusion medium comprising 5–10 l. of adult cow blood diluted to 50% and adjusted to pH 7.6. It was buffered and contained glucose, tryptophane, ascorbic acid, sodium pyruvate and 100,000 units penicillin. Up to nearly half the skin surface of the foetus was inoculated with virus and a yield of up to 400 times the original dose was obtained, i.e. up to 141 g. of virulent skin. Virulence was maintained or even accentuated. Further work on the optimum composition of the perfusion medium is in hand.

—G. V. LAUGIER.

SATTA, E. (1946.) Su di un virus rabico di strada a virulenza rinforzata. [A strain of rabies virus with reinforced virulence.]—*Atti*.

Acad. Fisiocr. Siena. Ser 11. **14**, 118–123. Abst. from abst. in *G. Batt. Immun.* **37**, 448. (1947.) 2569

A girl bitten by a dog died despite treatment with phenolized anti-rabies vaccine. The virus, which had not induced the formation of Negri bodies in the girl, was inoculated into g. pigs and rabbits, causing death from paralytic rabies in both species. Negri bodies were found only in rabbits, but were subsequently found in g. pigs which had been inoculated with virus from rabbits.

Intracerebral serial passage of the virus rapidly increased its virulence in both g. pigs and rabbits with absence of Negri bodies in both.

—E. V. L.

REMLINGER, P. & BAILLY, J. (1946.) Action des filtrats de cultures de *Bacillus subtilis* sur le virus de la rage. [The action of culture filtrates of *B. subtilis* on the virus of rabies.]—*C.R. Acad. Sci., Paris.* **223**, 118–120. 2570

Mixtures of cultures of *B. subtilis* in Martin's broth grown for periods varying from 12–18 days were passed through a Chamberland L₂ bougie. The filtrate was added to an equal volume of a 1:50 dilution of brain suspension of a rabbit which had died from fixed rabies virus infection, this suspension having first been filtered. A control mixture was made by adding suspension to an equal volume of physiological saline: all these mixtures had a pH = 8.0. Samples were inoculated at intervals subdurally in rats and mice.

The rabies virus in the brain suspension was destroyed by the *B. subtilis* culture filtrate at 38° C. in 2.5 hours. The precise reason for this strong anti-rabies virus action is at present difficult to determine; the effects of the *B. subtilis* culture filtrates are probably related to the presence of proteinase.—E. V. L.

IONESCU, D. (1946.) Importanta vaccinatiunii antirabice, preventive si obligatorie in masa a cainilor, in profilaxia turbarii. [The importance of mass vaccination of dogs in the prevention of rabies.]—*Rev. Stiint. Med.* **35**, 424–430. 2571

Preparation of a rabies vaccine stated to be most suitable for the mass immunization of dogs was described. After 300 serial passages in dogs of a virus obtained from a wolf the incubation period became fixed at seven days. The vaccine consisted of 5 g. of brain suspended in 100 ml. of physiological saline containing 1% of phenol and kept for three days at 37° C.—E. G.

COLLIER, W. A. (1949.) Haemagglutination through vaccinia virus. I. The aptitude of buffalo pulp for haemagglutination through vaccinia

virus. II. The effect of rabbit immune serum on haemagglutination through vaccinia virus.—*Doc. Neerl. Ind. Morb. Trop.* 1. 81–89; 110–116. [In English.] [Author's summaries copied *verbatim*.] 2572

I. Buffalo [pulp virus material harvested from buffalo calves instead of from cattle calves] is pre-eminently fit for agglutination; only very rarely does it fail to act. Glycerolated buffalo lymph frequently yields satisfactory results, even with material 18 years old; dry vaccine will always do so.

The haemagglutinating element seems to be an antigen closely related to S-antigen, perhaps even identical to it. Its very high thermostability and formalin-resistance point to this.

The binding of the virus to the erythrocytes is very firm.

II. Rabbit serum inhibits haemagglutination of chicken blood both by living and by heated vaccinia virus. Even after 5 minutes the binding with vaccinia virus is complete. Chicken erythrocytes do not bind the antiserum.

After 24 hours the action of the antiserum has disappeared, through adsorption of virus to erythrocytes. If the tubes showing inhibition of agglutination are then shaken, agglutination will ensue.

If an antiserum is heated together with vaccinia virus the haemagglutination-inhibiting action continues, whereas antiserum heated in the absence of the virus becomes inactive at analogous temperatures. Neutralizing antibodies against vaccinia virus are not protected from destruction through heat by the presence of the virus. The same phenomenon is observed with anti-OH-typhoid serum. In the presence of homologous bacteria the agglutinating capacity of the antiserum is preserved, notwithstanding heating.

RAO, R. S. (1949.) **Purification of vaccine lymph by penicillin.**—*Indian J. med. Res.* 37. 267–275. [Abst. from author's summary.] 2573

Penicillin in concentrations tested had no deleterious effect on the potency of the virus.

Penicillin even in as high a concentration as 5,000 units per c.c. does not purify glycerinated calf lymph. It seems evident that the favourable reports on penicillin as a suitable purifying agent for routine purification of glycerinated calf lymph may be based only on results obtained soon after treatment, no penicillinase being used and the initial tests not being followed by others after longer intervals.

LÉPINE, P., ATANASIU, P. & CROISSANT, O. (1949.) **Sur la structure du virus de la variole aviaire.**

[The structure of the fowl pox virus.]—*C. R. Acad. Sci., Paris.* 228. 1068–1070. 2574

The virus of fowl pox after preliminary digestion with pepsin was examined under the electron microscope. The virus particle was seen to have a central body suggesting a nucleus with surrounding cytoplasm.—D. LUKE.

LOSINSKI, T. (1949.) **Aspekt etiologiczny i zmiany anatomo-patologiczne grypy prosiat.** [Aetiology and pathology of influenza in piglets.]—*Med. weteryn.* 6. 463–466. [French and Russian summaries.] 2575

The slight changes in the mucosa of the lungs caused by the virus facilitate the entrance of secondary organisms. *Haemophilus influenzae-suis* appears first, then *Pasteurella*. Describing the classical pathological changes the author gave details of lesions in the brain in the form of encephalitis and meningitis. Regarding the aetiology he suggests that the virus may be a less virulent form of the swine fever virus. Observation made by him shows that during the slow course of piglet influenza typical pathological changes of swine fever eventually developed. In the first few animals to be affected the only changes demonstrable were those of piglet influenza. As the outbreak progressed P.M. examination of further animals revealed a gradual transition in lesions until in the next batch of piglets which died there was a typical picture of swine fever. When the first changes occurred some of the piglets were inoculated with swine fever serum and those so treated survived. [Possibly both viruses were present.]

—JOHN R. MITCHELL.

SUGAWA, Y., MOCHIZUKI, H. & YAMAMOTO, S. (1949.) [Histo-pathological studies on naturally affected horse with Japanese equine encephalitis.]—*1st Rep. Jap. Equine Enceph.*, 1949. pp. 9–26. [Abst. from English summary.] 2576

Material from 69 field cases was studied and of these 54 were diagnosed as positive. The distribution and frequency of occurrence of the lesions in various parts of the brain and spinal cord was given, the most frequent site of lesions being the corpus striatum. The pathological changes were described. In diagnosis this disease had to be differentiated from parasitic equine encephalomalacia and an encephalitis which occurs in cases of equine infectious anaemia. In one of the series studied a larval nematode (*Setaria* sp.) was found in the corpus striatum. A useful table in English indicates the salient differential features of (a) Japanese equine encephalomyelitis, (b) parasitic equine encephalomalacia and (c) the encephalitis due to equine infectious anaemia.—M. C.

TUBAHARA, H. & HARADA, K. (1949.) [**Experimental studies on the protective effect of formol killed vaccine for Japanese equine encephalitis.**]—*1st. Rep. Jap. Equine Enceph.*, 1949. pp. 27-40. [Abst. from English summary.] 2577

Critical tests were made on vaccinated and unvaccinated horses by intracerebral inoculation of infected mouse brain tissue in dilutions varying from 1:10 to 1:10,000. All the inoculated horses died whether vaccinated or not. Further experiments are to be made after the minimum lethal dose has been determined.—M. C.

KAWASHIMA, H. & YOSHIDA, T. (1949.) [**On the complement fixation test of Japanese equine encephalitis.**]—*1st. Rep. Jap. Equine Enceph.*, 1949. pp. 41-55. [Abst. from English summary.] 2578

Tests of horse serum samples were made during outbreaks at (a) the Tokio racecourse and (b) in the vicinity of Tochigi City. The serum of g. pigs at the laboratory was also tested and many of them were positive over a wide range of dilutions.—M. C.

SHIMIZU, T. & KAWAKAMI, Y. (1949.) [**Studies on swine still-birth, especially on its relation to Japanese encephalitis.**]—*1st. Rep. Jap. Equine Enceph.*, 1949. pp. 117-128. [Abst. from English summary.] 2579

In 1947 and 1948 when epidemics of equine encephalomyelitis were occurring many sows gave birth to still-born young—in some areas up to 70% of pregnant sows were affected.

The seasonal occurrence, the negative findings in bacteriological studies, the nature of the lesions in the brains of both sows and still-born piglets and the results of cross neutralization tests with a virus which was isolated from a still-born piglet all suggested that the still-births in the sows were the result of infection with the virus of Japanese equine encephalomyelitis.

—M. C.

TABUCHI, E., HOSODA, T., AKIYAMA, Y. & NARITA, R. (1949.) [**Studies on the epidemic swine still-birth in Aomori and Iwate Prefectures.**]—*1st. Rep. Jap. Equine Enceph.*, 1949. pp. 129-140. [Abst. from English summary.] 2580

It was suggested on epidemiological evidence, that swine may be a reservoir of virus and outbreaks in horses and in man may originate from swine.—M. C.

SUGAWA, Y., MOCHIZUKI, H. & YAMAMOTO, S. (1949.) [**Histo-pathological studies on swine still-birth.**]—*1st. Rep. Jap. Equine Enceph.*, 1949. pp. 141-149. [Abst. from English summary.] 2581

Lesions, which were described, were found in the brains of sows which had given birth to still-born young and also in the brains of still-born piglets. These lesions were similar to those of Japanese equine encephalomyelitis.—M. C.

SHIMIZU, T. & KAWAKAMI, Y. (1949.) [**Experimental studies on swine artificially inoculated with Japanese encephalitis virus.**]—*1st. Rep. Jap. Equine Enceph.*, 1949. pp. 151-158. [Abst. from English summary.] 2582

Seven young pigs were used, five being injected intracerebrally and two intravenously with suspensions of infected mouse brain. Those infected intracerebrally died, but those inoculated intravenously survived after having a marked febrile reaction.

The distribution of virus in the organs and blood stream of the infected pigs at varying periods after inoculation was tabulated.—M. C.

YAMAMOTO, S., TUBAHARA, H., YOSHIDA, T. & HARADA, K. (1949.) [**First observation on case of Japanese B encephalitis of cattle.**]—*1st. Rep. Jap. Equine Enceph.*, 1949. pp. 197-203. [Abst. from English summary.] 2583

During 1948 at a time when cases were occurring in man and in horses, four cattle in one village developed symptoms closely resembling those of the horses. One of these died and the virus was isolated from its brain.

The symptoms were described, as was the histology of the lesions in the brain and cord.

—M. C.

TABUCHI, E., NARITA, R. & EBI, Y. (1949.) [**Studies on the isolation of Japanese equine encephalitis virus from horse, mother swine and delivered pig of still-birth in Aomori Prefecture.**]—*1st. Rep. Jap. Equine Enceph.*, 1949. pp. 107-115. [Abst. from English summary.] 2584

During an outbreak in horses in August 1948 two strains of virus were isolated in mice. In October of the same year many sows gave birth to still-born young and the virus was isolated from one such sow and from three still-born piglets. Both the horse and the pig strain were identified by neutralization tests as that of Japanese B encephalitis.—M. C.

ANON. (1949.) [**Encephalomyelitis prophylaxis.**]—*Veterinariya, Moscow*. 26. No. 6. pp. 15-16. 2585

A suggestion that horses should be protected against equine encephalomyelitis by preventing attack by blood sucking arthropods through the use of the parasitocides D.D.T. and benzene hexachloride.—F. A. A.

VON MAGNUS, H. & VON MAGNUS, P. (1949.)
Breeding of a colony of white mice free of
encephalomyelitis virus.—*Acta path. microbiol.*
scand. 26. 175–177. [In English.] 2586

A preliminary note. A colony of white mice free from encephalomyelitis virus (strain TO) was bred by a white rat nursing a new-born litter of mice under completely sterile conditions and then interbreeding the mice. TO virus was tested for by inoculating a 20% suspension in ether of intestines and intestinal contents from five mice (usually 6–8 weeks old) intracerebrally into 20 white mice four weeks old. Such a suspension obtained from normal mice caused paralysis in 10–18 of the 20 mice within 28 days. Differences in response of virus-free mice and normal adult and baby white mice to subcutaneous oral and intracerebral inoculation were briefly indicated.—C. M. S.

STECK, W. (1949.) Infektiöse Anämie der Pferde. [*Infectious anaemia in horses.*]—*Schweiz. Arch. Tierheilk.* 91. 346–353. 2587

Report on published work carried out in 1943–48 mainly on the examination of the tongue as a clinical method, the characteristic lesions in the lungs and the spread of the infection on farms, often in a latent form.

MITCHELL, D. T. & MANSVELT, P. R. (1949.)
Investigation into immunization of cattle against
rinderpest in Tanganyika territory.—*Onder-*
stepoort J. vet. Sci. 22. 231–253. 2588

The work here described was carried out in 1940 prior to the death of the senior author (Mitchell, D. T.)

A series of 23 experiments is described.

Of the two main types of cattle used—local humped zebu and long horned humpless Ankole or Ufipa cattle—the zebu has a relatively high resistance to rinderpest.

Evidence was obtained that formolized spleen vaccine is a safe method of conferring immunity to cattle. The quantity of vaccine had little effect on rate of development and degree of immunity. The degree of immunity was high after the 15th day, but not absolute in all animals. Further investigations into the relative value of single, double and triple vaccinations will have to be made.

The experiments showed that the most promising method of immunization was a combination of spleen vaccine followed by Kabete goat virus—the more attenuated of the two types of goat virus used, but the duration of the immunity was not determined.

The mortality as a result of reactions was negligible throughout.—W. S. MARSHALL.

ANON. (1949.) East Africa. Report of the Committee of Inquiry appointed by the East Africa High Commission to inquire into the causes of the failure of K.A.G. and other vaccines prepared at Kabete.—pp. 15. Nairobi: Govt. Printer. 2589

Difficulties which had arisen in connexion with the use of the Kabete strain of goat-adapted rinderpest virus in 1948 were the subject of inquiry.

There had been complaint of (a) failure of the virus to confer immunity and (b) of outbreaks of severe rinderpest having occurred as a result of inoculation of cattle with this strain of virus.

The Committee was of the opinion that the mortality following the use of the K.A.G. (Kabete goat-adapted virus) vaccine was not caused by an increase in virulence of the vaccine strain but resulted from the inclusion in the vaccine of a field strain of virus of high virulence and invasiveness. This field virus had gained access to the vaccine either (1) from natural infection of the goats used for vaccine production or (2) by accidental mixing of strains in the laboratory. It was not definitely proved which of these alternatives had occurred. The consensus of opinion among the laboratory staff at Kabete was that goats were not susceptible to infection with rinderpest by contact with sick cattle and consequently isolation arrangements for goats awaiting use as vaccine producers were not very rigid. Reports from other parts of the world, e.g. Ceylon, Malaya and Burma indicate that goats can become infected with field strains of rinderpest by contact with cattle. It was also stated that the Masai tribe in Kenya believe that goats may become infected from cattle.

A perusal of this report points to inadequate housing accommodation for livestock, inadequate laboratory accommodation and shortage of professional staff to deal with the very large volume of vaccines produced. These appear to be the basic causes of the breakdown which had occurred.

Steps which were recommended to restore the position at Kabete include improvements in accommodation for livestock, separation of rinderpest production from other experimental work, improvements in fencing and improvements in methods of management of stock awaiting use.—M. C.

MARTIN, L. A. (1949.) Virus de la maladie de Carré et virus poliomyélique. [*Relationship between distemper virus and poliomyelitis virus.*]—*Maroc méd.* 28. 488–493. 2590

A general article on the relationship of distemper virus to poliomyelitis virus, together with a small number of experiments devoted to the same subject.—H. PLATT.

PAVILANIS, V. (1948.) Formes leucocytosiques de la leucopénie des chats. [**Feline infectious agranulocytosis.**]—*Ann. Inst. Pasteur*. **74**. 209–215. 2591

Some cats manifested a leucocytosis following experimental inoculation with the virus of feline infectious agranulocytosis; this may be due to a secondary infection and the resulting leucocytosis dominates the initial leucopenia.

In other cases of infectious agranulocytosis the white blood cells increase instead of diminishing in number. That this is due to the pure virus infection is proved by the demonstration of intranuclear inclusion bodies and further transmission experiments which produce the usual agranulocytosis.—W. S. MARSHALL.

BORNSTEIN, S., RAUTENSTEIN, A. & MOSES, E. (1949.) [A large-scale vaccination breakdown with “Mukteswar” Newcastle vaccine, and its investigation by means of the haemagglutination inhibition test.]—*Refuah vet, Palestine*. **6**. 127–138. English summary p. 158. [Abst. from summary.] 2592

This report records the appearance of Newcastle disease in flocks which had been vaccinated with “Mukteswar” vaccine. The disease among the previously vaccinated birds took a relatively benign form. The authors consider that the immunity produced by the “Mukteswar” vaccine does not endure for the lifetime of the bird and should not be relied on for more than one year. Using the H.I. test a titre of about 1 : 300 was required to protect a flock against exposure to the disease.—D. LUKE.

BANG, F. B. & LIBERT, R. (1949.) Agglutination of red cells altered by the action of Newcastle disease virus. 1. The effect of chicken sera from infected birds on sensitized cells.—*Johns Hopk. Hosp. Bull.* **85**. 416–430. [Authors' summary copied verbatim.] 2593

Chicken red cells “sensitized” by exposure to Newcastle virus may be agglutinated by sera and red cell hemolysates which do not agglutinate normal red cells. Four approaches have been used in trying to understand this phenomenon: The effects of (1) different temperatures, (2) different strains of virus, (3) cells from different chickens, and (4) the occurrence and stability of the agglutinating sera.

Sera taken from chickens five to seven days after they are inoculated with a virulent Newcastle virus will agglutinate “sensitized” cells, but

fail to agglutinate normal cells. This characteristic of the sera does not obtain during the subsequent few days of the chicken's convalescence, antibodies (anti-virus hemagglutinins) having meanwhile appeared and persisted.

The factor in the serum responsible for the agglutination of sensitized cells is resistant to a temperature of 56° C. for one hour, it does not dialyze through a collodion bag, it is preserved for 13 months in a frozen state, and is partially precipitated by dialysis against distilled water.

Sensitized cells were agglutinated by a hemolysate of human red cells and by the washed ghosts of normal chicken cells.

Attempts to characterize the factor by some of the usual enzyme inhibitors failed. Proteases, such as purified and crude trypsin and crude commercial papain agglutinated sensitized chicken cells and not normal cells in the concentrations used. This agglutination was inhibited by soybean inhibitor. However, chloroform treatment of normal sera which in mammalian sera released the fibrinolytic enzyme failed to produce an agglutinin of sensitized cells, and soybean inhibitor of trypsin did not inhibit agglutination by the positive chicken sera.

JANSEN, J. & KUNST, H. (1949.) Is eendenpest verwant aan hoenderpest of pseudohoenderpest? [Is duck plague related to fowl plague or Newcastle disease?]—*Tijdschr. Diergeneesk.* **74**. 705–707. 2594

A virus isolated from an outbreak of duck-pest was compared with known strains of fowl plague and Newcastle disease viruses using haemagglutination, haemagglutination-inhibition and cross immunity tests. It was concluded that the duck-pest virus was not related to that of Newcastle disease nor to that of fowl plague.

—M. C.

CAMINOPETROS, J. (1948.) Q fever, a respiratory human epidemic disease in the Mediterranean area, determined a milk-borne infection from goats and sheep.—*Proc. 4th Internat. Congr. Trop. Med. Malar.* pp. 441–449. 2595

C. described his work from 1944–47 with German troops, Allied troops and in sheep and goats and covered much the same ground as in his article already abstracted [*V. B.* **19**. 603.]

—M. C.

I. ANON. (1948.) Q. fever in Algérie. [“Q” fever in Algeria.]—*Rapp. Inst. Past., Maroc*. pp. 6–7. 2596

II. ANON. (1948.) La Q. fever au Maroc. [“Q” fever in Morocco.]—*Ibid.* p. 7. 2597

III. ANON. (1948.) Boutonneuse et Q. fever; ce dernier virus existe chez *Rhipicephalus sanguineus*. [“Fièvre boutonneuse” and “Q”

fever in *Rhipicephalus sanguineus*.]—*Ibid.* pp. 7—8. 2598

I. Two cases of Q fever have been diagnosed from Algeria and *Rickettsia burneti* was isolated from the cattle tick *Hyalomma mauritanium*.

II. *R. burneti* was isolated from *Hyalomma* spp. from cattle in Agadir and Inesgane and from camels in Goulimine. It is probable that the infection, carried by camels, is widespread in the Sahara.

III. During passage experiments in g. pigs with "fièvre boutonneuse" (*R. conori*) derived from *Rhipicephalus sanguineus*, the character of the lesions was found to change at the ninth passage. A study of the rickettsia then present showed it to be *R. burneti*. It was concluded that the original ticks were infected with both rickettsia and that *R. conori* had died out during passage. This finding indicates that *R. sanguineus* is a vector of Q. fever.—A. FOGGIE.

PAYZIN, S. & GOLEM, S. B. (1948.) Türkiye'de Q Humması. [Q fever in Turkey.]—*Türk ijiyen ve tecrübi Biyoloji Dergisi*. 8. 94—116. [English and French summaries.] 2599

Serum samples from 100 cases of atypical pneumonia in man were tested against *R. burneti* antigen, 24 fixed complement at dilutions of 1:10—1:320. Blood samples from animals were taken at abattoirs in several parts of Turkey. Twenty-three of these from cattle were negative; of 22 samples from goats 4 were positive and of 11 from sheep 7 were positive. Defibrinated blood from 16 suspected Q fever patients was injected into g. pigs and *R. burneti* was isolated from five. The possibility is mentioned of some relationship between Q fever and

caprine contagious pleuro-pneumonia.

—F. CHIZMAN.

PAYZIN, S. (1948.) Fas, Ankara, İzmir Cıkağı Q Humması susları ile bağışıklık deneyleri. [Experiments with Q fever strains F., A., and I.]—*Türk. İjiyen ve tecrübi Biyoloji Dergisi*. 8. 126—131. [English summary.] 2600

The object of the experiments was to examine the relationship between Turkish strains of Q fever (two from the Ankara region and two from İzmir) and the Fas (Morocco) strain isolated by Blanc from naturally infected *Hyalomma* ticks. G. pigs were used as test animals, suspensions of spleen from infected animals being given intraperitoneally for infection and immunity tests of convalescent animals. In these tests, the various strains satisfactorily cross-immunized. A tick strain of *R. burneti* immunized g. pigs against strains isolated from different parts of Turkey and *vice versa*.

—F. CHIZMAN.

PAYZIN, S. (1948.) Orta Anadoluda bir köyde Q Humması salgını. [Q fever in mid-Anatolia.]—*Türk İjiyen ve tecrübi Biyoloji Dergisi*. 8. 116—125. [English summary.] 2601

Blood serum from a doctor suspected of Q fever reacted to the complement fixation test at 1:320. Recovery was rapid. In the village where he practised and where one fatal case of Q fever had occurred, some 20 sick and recovered persons were examined. Blood from 5 of these was positive for Q fever in g. pigs. The disease in this village occurred in the shearing season and the excreta of infected ticks in the wool were thought to be responsible for the disease.

—F. CHIZMAN.

See also absts. 2652 (bovine contagious pleuro-pneumonia); 2657 (kerato-conjunctivitis); 2765 (report, India); 2766—2767 (reports, Ceylon); 2769 (report, Nyasaland); 2770 (report, Swaziland); 2771 (report, East Africa); 2772—2773 (reports, Bechuanaland); 2774 (report, Northern Rhodesia); 2775 (report, Gambia Colony); 2776—2777 (reports, British Honduras); 2778 (report, Bermuda); 2781 (report, Cyprus); 2783 and 2786 (reports, U.S.A.).

IMMUNITY

BLOMFIELD, A. M., COOMBS, R. R. A. & HOLE, N. H. (1949.) The conglutination phenomenon. V. Further experiments on the importance of the choice of complement when examining antisera for the presence of complement-fixing or complement-absorbing antibodies.—*J. Hyg., Camb.* 47. 132—141. 2602

Using the haemolytic complement-fixation test and the conglutinating complement-absorption test, the complement of the horse appeared to be more sensitive than that of the g. pig, pig or cat in nearly every case in demonstrating the presence of specific antibodies in anti-mallein sera of 13 species including man and one species of bird. With antisera of fowls

inoculated with mallein, fixation of any of the four complements (g. pig, pig, horse, cat) did not occur although the presence of immune bodies was detected by another method.

—R. MARSHALL.

JOHNSON, R. B. (1946.) The effect of time and temperature of inactivation on the reactivity of certain bovine sera to the complement fixation test.—*Rep. N.Y. St. vet. Coll.*, 1944—45. pp. 140—146. 2603

Using a haemolytic complement-fixation test to detect antibodies to an alcohol-pyridine extract of human type tubercle bacilli in bovine sera, it was shown that:—(a) The temperature of

inactivation significantly affected the reactivity of the sera from some animals. Sera inactivated at 52° C. revealed anticomplementary tendencies, but with higher fixation temperatures some sera yielding weak fixation were markedly affected, although more strongly reacting sera were almost unaffected. (b) The time of inactivation when varied between 15 and 30 min. had little effect on the final reactivity of the sera.—J. T. DONE.

MASKAR, Ü. (1949.) Deve Antiserumunun spesifitesi üzerinde. [**Specificity of camel antiserum.**]—*Istanbul Üniversitesi Tıp Fakültesi Mecmuası*. 12. pp. 239–245. [In German.] 2604

Camel antiserum prepared in rabbits was tested against sera of the following species: ox, buffalo, sheep, goat, horse, donkey, rabbit and man. Precipitation occurred only with the homologous antiserum. The importance of this in meat inspection is emphasized.—H. ERGÜN.

LEÓN, A. P. & GUADALUPE DE ITA, M. (1949.) Inactivación de las autolisinas de los meningococos suspendiéndolos en solución de sacarosa. Estudio de las propiedades inmunológicas de la suspensión. [**Inactivation of the autolysin of meningococci by suspension in saccharose solution. A study of the immunological properties of the suspension.**]—*Rev. Inst. Salubr. Enferm. trop.* 10. 239–251. [English summary.] [Abst. in *Bull. Hyg., Lond.* 25. 851–852. (1950), copied *verbatim*. Signed: J. C. BROOM. 2605

The enzyme which is normally present in meningococci, and which produces autolysis of the organisms when they are suspended in physiological saline solution, can be destroyed by heating the suspension to 70° C. Vaccines prepared in this way were found to immunize rabbits less effectively than unheated suspensions injected immediately after they were prepared and before autolysis had taken place. Other methods were therefore sought of inactivating the enzyme without damaging the antigenic qualities of the

organism. No effect was obtained by varying the reaction of the saline between pH 6.0 and 8.5, but lysis was completely inhibited by replacing the electrolyte with isotonic saccharose solution (9.5 per cent.). Although the enzyme is thereby inactivated it is not destroyed; experiments showed that lysis would occur in the saccharose suspension if sufficient sodium chloride were added to bring the salt concentration up to 0.85 per cent.

The toxicity for white rats of the saccharose suspension was less than that of an autolysed saline one which originally contained the same number of organisms. Injection of the saccharose suspension into rabbits and human volunteers provided a good antigenic stimulus, as measured by the production of agglutinins, precipitins, and protective and complement-fixing antibodies.

These results are thought to justify the experimental use of saccharose suspensions in the prophylaxis of meningococcal meningitis in man. In the human tests, doses of 0.25, 0.50, 0.75 ml. of a saccharose suspension containing 2,000 million organisms per ml., preserved with 0.2 per cent. formalin, were injected subcutaneously, at weekly intervals.

SELYE, H. (1949.) Effect of ACTH and cortisone upon an "anaphylactoid reaction".—*Canad. med. Ass. J.* 61. 553–556. [Author's summary copied *verbatim*.] 2606

Cortisone (a gluco-corticoid compound) and purified ACTH inhibit the anaphylactoid reaction of the rat to the parenteral administration of egg-white. Desoxycorticosterone acetate (a mineral-corticoid compound) and a highly corticotrophic impure anterior pituitary preparation failed to inhibit and indeed tended to aggravate this reaction.

These observations are discussed in connection with the probable participation of the adrenal-cortex in the pathogenesis of the allergic and other so-called collagen diseases.

See also absts. 2487 (spore vaccines against anthrax); 2491 (P.P.D.); 2499 (vaccination against swine erysipelas); 2502 (fowl cholera vaccine); 2514 and 2517 (brucellosis); 2520 (*Brucella* agglutinins); 2525 (agglutination test for histoplasmosis); 2540 (dourine antigen); 2555 (malaria); 2563 (antigen production for anaplasmosis complement fixation); 2564–2567 (F. & M. disease); 2571 (rabies); 2572 (vaccinia); 2573 (purification of lymph with penicillin); 2577–2578 (Japanese equine encephalitis vaccine); 2588 (rinderpest); 2589 (K.A.G. vaccine); 2592 (Newcastle disease); 2640 (fowl leucaemia); 2755 (preservation of complement); 2756 (concentration of serum).

PARASITES IN RELATION TO DISEASE [GENERAL]

SCHWARTZ, B., IMES, M., & FOSTER, A. O. (1948.) Parasites and parasitic disease of horses.—*Circ. U.S. Dep. Agric.* No. 148. pp. 1–56. 2607

A general note, for laymen, dealing with internal and external parasites and their control; no new information.—BERYL A. THURSTON.

DU TOIT, R., GRAF, H. & THEILER, G. (1949.) Parasitological investigations in relation to animal industry in the Union.—*Commun. Afr. Reg. Sci. Conf., Johannesburg.* No. C(k) 6. pp. 5. 2608

The authors described recent observations

on external parasites of livestock in S. Africa and made recommendations as to the direction of future research in this field.

Trypanosomiasis is not a major problem as it is confined to an area in Zululand. Three species of tsetse fly are present, *Glossina pallidipes*, *G. brevipalpis* and *G. austeni*, the area being an isolated focus separated by 300 miles from the nearest fly-belt. Enormous losses have occurred amongst the livestock in this area from *Trypanosoma congolense*, *T. brucei* and *T. vivax* infections. Previous control measures have been directed against reduction or elimination of game and the creation of bush free barriers around the reserves. In recent years D.D.T. and benzene hexachloride have been distributed by means of aircraft to attack the tsetse fly in its natural habitat.

Total eradication appears to have been achieved in certain areas with marked reduction of all three species over the whole area.

African horse sickness and bluetongue transmitted by *Culicoides* sp. are two of the most important problems in equines and sheep in the Union. The epidemiology is still obscure, but recently some evidence has been obtained that indigenous rodents may act as reservoirs for the viruses.

In blowfly strike of sheep and cattle the fly mainly concerned is *Lucilia cuprina*. Little success has attended past efforts in control by methods designed to reduce the incidence

of the flies, and more recent work has centred around the protection of sheep against attack. B.H.C. affords a protection of greater intensity and duration than does D.D.T. and a thorough wetting of the breech with a suspension of wettable powder of B.H.C. containing 0.5% gamma isomer affords protection for 1-3 months.

Blowfly strike in cattle caused by *Chrysomya bezziana* is fairly extensive in certain areas. No great measure of success has been obtained in efforts to solve this problem.

Of the environmental factors influencing the distribution of ticks in S. Africa, humidity alone or in conjunction with vegetation type were the most important.

Small field animals play a minor role as hosts of ticks.

From the point of view of tick control, the Union may be considered as divided into two areas; an East Coast Fever threatened area in which control of tick infestations on cattle is compulsory, and the other in which control is left to the discretion of the owners. In the former area weekly dipping in an arsenical dip (0.16% As_2O_3) is prescribed. D.D.T. and B.H.C. have failed to replace the arsenical dips mainly because of their rapid deterioration in the tanks.

B.H.C. dips have been found to be very effective against sheep scab at a concentration of 0.012% gamma isomer and using double dipping. The efficacy of D.D.T. is unsatisfactory and its use is not permitted.—K. B. SINCLAIR.

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

KÜHL, R., HOFFMANN, P. & WOLF, G. (1949.) Die Rinderdasselfliegen, ihre Schäden und Bekämpfung. [*Hypoderma bovis* control.]—*Tierärztl. Umsch.* 4. 132-136. 2609

A proprietary preparation of benzene hexachloride was tested on about 16,000 cattle affected with warbles. About 90-96% of both second and third stage larvae were killed when the substance was instilled into the warble holes or applied to the skin. No untoward effects were noted.—M. L. CLARKE.

BLOSS, J. F. E. (1945.) The tsetse fly in the Sudan.—*Sudan Notes*. 26. 139-156. 2610

An article written for laymen and dealing with the distribution, importance and control of *Glossina palpalis* and *G. morsitans*. There is a good account of the habitat and habits of the flies and a description of the control of the more important *G. palpalis*.—JAS. G. O'SULLIVAN.

BUXTON, P. A. (1949.) Notes on trypanosomiasis and tsetse in the southern parts of the

Anglo-Egyptian Sudan.—*Bur. interafr. Tsetse Tryp.*, Leopoldville. No. 85. pp. 11. 2611

B. recorded his impressions from a journey of six weeks in the Southern Anglo-Egyptian Sudan, in 1949. The knowledge of the tsetse fly in this area is described as fragmentary. Records relate to *Glossina morsitans* and *G. palpalis* which have a localized distribution, mainly along the Abyssinian border. This restriction of fly is due to the progressive desiccation which has rendered huge areas of the Sudan untenable. It is suggested however, that small foci of tsetse may exist where local conditions remain congenial.

G. morsitans occurs mainly in a large belt extending over 90,000 sq. miles running along the Southern frontier of the Bahr el Gazal, and "Equatoria." Other isolated localities where it exists, are detailed. *G. palpalis* occurs with *G. morsitans*, where it is limited to the banks of streams and rivers. Other species which may occur in the region are *G. tachinoides* and *G. pallidipes*.

A recommendation is made to the effect that more information should be collected of the seasonal distribution of *Glossina*, commencing with *G. morsitans*. Suggested methods of control included discriminative bush clearing, directed against the dry season foci, and along river banks to reduce the incidence of *G. palpalis*.

With reference to the incidence of trypanosomiasis in man, B. assumed the causative agent to be *T. gambiense*, which is transmitted by *G. palpalis*. The danger of an epidemic is slight, not only because the distribution of *G. palpalis* is restricted, but because mass diagnosis and treatment could overcome any serious outbreak. It is suggested that it might be justifiable to rely on regular inspection and treatment in affected areas, and that the present practice of maintaining block clearings should be given up.

The report is concluded with comments regarding cattle trypanosomiasis, in particular the incidence of cases in the apparent absence of tsetse. B. does not accept the premise that such trypanosomiasis is transmitted by tabanids and *Stomoxys*. He suggests that either small pockets of tsetse are to blame, or some other type of biting fly which is absent from other tsetse and trypanosomiasis free areas, in which *Stomoxys* and tabanids abound.—D. W. JOLLY.

LEWIS, E. A. (1949.) Tsetse and trypanosomiasis survey and control. An attempt to keep cattle and raise calves in the tsetse-infested experimental settlement at Gede in the Coast Province, Kenya.—*Bur. interafr. Tsetse Tryp., Leopoldville. Publ. No. 40.* pp. 4. 2612

A small herd of cattle free from trypanosomiasis and consisting of one bull, twelve Boran calves, and eight Serenli oxen, eight of the cows having calves at foot, and four being in calf, was exposed to tsetse infestation, to determine whether such beasts, especially their calves, kept and raised in the presence of trypanosomiasis would develop a resistance to the disease.

Eight cows were injected with dimidium bromide before removal to the infected area. The remaining four cows with their calves were left untreated.

This inoculation protected the cows for 3-4 weeks, after which all adult animals were injected with 1.5 g. antrycide soluble, or 2.25 g. of the mixed soluble and insoluble.

Monthly blood smears were examined and found negative for trypanosomes until three months after the use of antrycide when *T. vivax* was discovered by a gland examination. Gland smears had not been taken prior to this date, so the time of the initial invasion could not be

determined. Some blood smears were positive a month later.

A second dose of 2.25 g. mixed soluble and insoluble antrycide was therefore given after the fourth month. The same dose was given to the untreated calves, all of which had developed trypanosomiasis.

In conclusion, L. stated provisionally that the initial dose of antrycide would allow cattle to survive four months in a tsetse fly infested area. However, in cattle which relapse, the trypanosomes are not so readily affected by a second treatment with antrycide.—D. W. JOLLY.

NASH, T. A. M. (1948.) A note on the effect of high temperature on the pupal stage of *Glossina* in relation to the transmission-rate of trypanosomes.—*Ann. trop. med. Parasit.* 42. 30-32. 2613

Burt (1946) has shown that the temperature to which pupae of *G. morsitans* are exposed may greatly influence the infectibility of the flies by *Trypanosoma rhodesiense*. N. studied pupal microclimates at Gadau, Nigeria, which has a very hot climate. Pupae were found in the dry season in large numbers in soil of which the mean monthly temperature was 69° to 82° F., but very few were found where the temperature was over 82° F. Burt incubated his pupae at 86° F., a temperature which probably never occurs in the pupal environment in nature.

Other authors have suggested that subjecting the adult fly to high temperatures may increase its infection rate, especially at the time of the infective feed. N. has found that with rising evaporation and temperature and drying up of the streams, the tsetse population moves to the vicinity of permanent pools, where villages are frequently sited.—BERYL A. THURSTON.

ZUMPT, F. (1949.) Medical and veterinary importance of horse-flies.—*S. Afr. med. J.* 23. 359-362. 2614

A general discussion.—D. W. JOLLY.

FLOCH, G. & ABONNENC, E. (1944.) Sur la Papillonite Guyanaise. Description du papillon pathogène: *Hylesia urticans*. [Description of a "venomous" moth of French Guiana *Hylesia urticans*.]—*Inst. Pasteur. Guyane et Imini. Publ. No. 89.* pp. 10. 2615

Descriptions are given of the male and female of a species of *Hylesia*, which, because it is apparently the only one amongst some 300 species of this genus to have a stinging action, the authors propose to name *H. urticans*. It is suggested that the "venom" may be present in the blood of the insect. The authors mention a case of rhinopharyngitis, and report a case of stoma-

titis in a young cat after it had carried a female *Hylesia* in its mouth.—M. L. CLARKE.

PARISH, H. E. (1949.) Recent studies on life history and habits of the ear tick.—*J. econ. Ent.* 42. 416-419. 2616

Apart from the anaemia and mechanical irritation which follows infestation of cattle and other animals by the ear tick (*Otobius megnini*), it predisposes to myiasis. Studies on the life history of the tick are described. The ground under salt troughs was found to be the most popular habitat. Some sheep and a cow were found to be immune to its attack; no explanation is offered of this phenomenon. Small black ants, *Monomorium minimum*, were observed feeding on newly emerged adults in the laboratory, and large red ants *Pogonomyrmex barbatus* var. *molefaciens* attacked adults and fully engorged nymphs in the field. Engorged nymphs lived only a few minutes when dropped on to bare soil at 120°-128° F. This may account for the destruction of many ticks dropped from hosts in places where protection from the sun is not readily available. All stages of the ticks survived submersion in water for between 4-163 hours, thus indicating a possible method of spread.—G. B. S. HEATH.

BEAKBANE, H. R. & WILDE, J. K. H. (1949.) An investigation of the effect of gammexane in a half-bath on hard ticks on cattle.—*J. comp. Path.* 59. 155-167. 2617

Cattle were walked through a shallow gammexane dip and the ears, poll, tail and perineum were hand dressed. Nymphs, and the adults of *Rhipicephalus appendiculatus* R. *evertsi*, and *Amblyomma variegatum* were counted on ten heavily infested cows, and compared with those on five untreated animals. The dipping procedure was repeated weekly for 22 weeks, and then at intervals of five, five and four days for a further ten weeks. Tick counting preceded each dipping, except for the first and last fortnight of the trial, when the ticks were counted daily. Between the dippings the cattle were grazing tick infested pastures. Two days following the dipping, the tick numbers fell, but thereafter an increase occurred up to the seventh day, when the dipping was repeated. During subsequent weeks, however, there was a general decline in the number of ticks on the dipped animals until the onset of the rains resulted in an increase in the tick population on both dipped and undipped animals.

A proportion of the ticks which attached subsequent to dipping, failed to complete engorgement. At no stage of the trial were the

dipped animals completely free from ticks, and the rate of survival was greatest in the ears, where the natural greases probably prevented the spread and deposition of the acaricide. Some evidence that this serial dipping controls East Coast fever was provided by a group of 12 calves, which were dipped with the experimental animals, and remained free from the disease. The change from weekly dipping to a shorter interval of five, five, four days, resulted in better tick control, and no ticks were able to complete engorgement.—D. W. JOLLY.

GUILHON, J. (1948.) Propriétés acaricides des insecticides chlorés. [Acaricidal properties of chlorinated insecticides such as D.D.T. and gammexane.]—*Rec. Méd. vét.* 124. 481-502. 2618

A general account of the acaricidal effects of chlorinated organic compounds. These included D.D.T. (dichlorodiphenyl-trichloromethylmethane), γ -hexachlorohexane, polychlorocyclohexane sulphonates, chlorinated terpenes, chlorinated benzenes and hexachlorethane. They were assessed for activity against a wide range of ticks.—MALCOLM WOODBINE.

KÜNZER, P. K. & VELBINGER, H. H. (1948.) Gammexan als neuzeitliches Bekämpfungsmittel gegen Räudekrankheiten. [Gammexane in treatment of mange.]—*Dtsch. tierärztl. Wschr.* 55. 243-245. 2619

A general note on the treatment of mange; no new information.—J. EDWARDS.

MCCAY, C. M. & UDALL, R. H. (1949.) Phenothiazine in the treatment of demodectic mange.—*Cornell Vet.* 39. 73-76. 2620

An account of follicular mange on six dogs. Two were apparently infected when introduced into the kennel and the other four are considered to have acquired the disease from them. The two originally infected dogs did not respond to benzyl benzoate treatment, but the other four did; the two also failed to respond to benzene hexachloride, D.D.T. and rotenone and later picric acid, ferric chloride and weak tincture of iodine. Finally an ointment containing phenothiazine (1 oz.) furacin ($\frac{1}{2}$ oz.), wheat germ oil (2 oz.), 1% adrenalin ($\frac{1}{2}$ oz.) and lard (16 oz.), yielded fairly good results; to complete the cure phenothiazine was applied to remaining lesions and the condition cleared up.—J. EDWARDS.

GRIFFITHS, R. B. & O'ROURKE, F. J. (1949.) Successful treatment of "scaly leg" with "gammexane". [Correspondence.]—*Nature, Lond.* 164. 65. 2621

In a mixed flock of 147 poultry, 101 birds were infected, 16 severely, with *Cnemidocoptes mutans*. After single treatments of benzene hexachloride (gammexane), in dilutions of 0.1% or 0.5% in various vehicles, mild or

moderate cases were freed from infection, and after a second treatment all but two were freed. The houses were sprayed to give a deposit of 200 mg. γ -isomer of benzene hexachloride per sq. ft.—NESTA DEAN.

See also absts. 2467 (staphylococcal infection in lambs—tick bite); 2596–2598 (ticks and Q fever); 2608 (parasitological investigations); 2652 (*Boophilus* and *Siphona*); 2686 (tick dipping tanks); 2687 (aircraft disinsection); 2688 (insecticide sprays); 2764 (report, Union of South Africa); 2768 (report, Uganda); 2770 (report, Nyasaland); 2781 (report, Cyprus); 2784 (report, U.S.A.).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

COSTA, A. (1949.) Pancreatite da Bilharzia crassa nei bovini. [*Schistosoma bovis* infection of the pancreas in cattle.]—*Profilassi*. 22. 64–67. [English and French summaries. Abst. from summaries.] 2622

C. found ova and adult forms of *Schistosoma bovis* in the pancreas of three cattle in Italy. Lesions in the pancreas were dilatation and atrophy of the vessels, perilobular fibrosis and atrophy of some of the acinous tubules and of some of the islets of Langerhans. Where the ova were embedded in the parenchyma there were nodules. The pancreas is stated to be an unusual site for the parasite.

There are three photomicrographs.—E. G.

VAN AMERONGEN, A. J. (1947.) Over het voorkomen van de *Taenia echinococcus* (*Echinococcus granulosus*) in de provincie Gelderland. [The occurrence of *Echinococcus granulosus* in Gelderland (Holland).] *Tijdschr. Diergeneesk.* 72. 237–242. 2623

The role of dogs in the spread of echinococcosis in farm animals and man was discussed. Of 98 dogs examined in April 1947 in the province of Gelderland, 43 harboured *Echinococcus granulosus*. It is believed that the majority of dogs become infested by feeding on offal from home-slaughtered cattle and pigs.

The author spoke of the importance of preventing dogs from obtaining access to affected carcasses and of control measures in general.

—E. G.

BATTELLI, C. (1949.) Il “*Cysticercus dromedarii*” (Pellegrini 1945) in Eritrea. [*Cysticercus dromedarii* in Eritrea.]—*Boll. Soc. ital. Med. Igiene trop.* 9. 289–294. [Abst. from English summary.] 2624

B. discussed certain relevant literature on *C. dromedarii* and described the observations made in Eritrea where he had seen the parasite in zebu cattle and in certain antelopes.

PELLEGRINI, D. (1949.) Il “*Cysticercus dromedarii*” ottenuto sperimentalmente nel bovino. [Experimental infection of a calf with *Cysticercus dromedarii* by feeding it with proglottides

of *Taenia hyaenea*.]—*Boll. Soc. ital. Med. Igiene trop.* 9. 284–288. [English summary.] 2625

P. states that *Cysticercus dromedarii* is the larval stage of *T. hyaenea*. Mature proglottides of *T. hyaenea* were present in the faeces of a young hyena fed cysts of *Cysticercus dromedarii* from the mesenteric lymph nodes of an ox. These proglottides were fed to a 10-month-old calf which was killed 74 days after the first administration and cysts of *Cysticercus dromedarii* were found in the myocardium, the cerebrum and the cerebellum.—E. G.

FENG, L. C., LIN, C., TING, H. C. & HWANG, J. C. (1949.) The action of *Areca* nut (*Areca catechu*) and its extracts on tapeworms.—*Peking Nat. Hist. Bull.* 17. 233–240. 2626

In vitro tests using 1–2% extract of areca nut in saline paralysed specimens of *Taenia solium*; *T. saginata* was less sensitive; *Hymenolepis nana* was very sensitive. Extract of *Filix mas* was also effective against the worms.

Tapeworms were not completely evacuated from a cat given orally 150 mg. of a bismuth iodide compound of the areca alkaloid, but 10 *T. taeniaeformis* and 77 *Dipylidium caninum* were evacuated complete with scolices after a second treatment with 350 mg.—R. MARSHALL.

HOBSON, A. D. (1948.) The physiology and cultivation in artificial media of nematodes parasitic in the alimentary tract of animals.—*Parasitology*. 38. 183–227. 2627

An extensive review of the physiological and biochemical environment of parasitic nematodes, the chemical composition and physiology of the parasites and of their survival *in vitro*. The reasons for specific habitats in the gut of the host, the resistance of the worms to digestion by the host and the nutrition and metabolism of the parasites are discussed. Fatty acids (especially valeric) and CO₂ are normal excretory products and it is substantiated that the relations of intestinal nematodes to aerobic and anaerobic conditions vary considerably. Ascarids can absorb O₂ from their surroundings. Attempts

to cultivate parasitic stages or even to maintain adult nematodes outside the body, have not been successful. Details are given of the essential requirements in artificial media.

—JAS. G. O'SULLIVAN.

WETZEL, R. (1948.) Zur planmässigen Bekämpfung der Pferdestrongyliden mit Phenothiazin. [Control of strongyles in horses by phenothiazine.]—*Dtsch. tierärztl. Wschr.* 55. 315–320. 2628

W. describes a technique which has given good results for the control of strongylosis in horses on farms and studs in north western Germany. The control measures are applied to all the horses having access to a common pasture, whether showing signs of worm infestation or not. Phenothiazine is given two or three times a year, the most important time for treatment being the spring before horses are turned out on to summer pasture. This treatment results in a low degree of herbage infection during the summer. The second treatment takes place in the autumn and the third is given, if necessary, at the end of the winter to deal with any residual infestation which survived the previous treatments.

Phenothiazine is always given in divided dosage consisting of 10 g. on each of three successive days for full grown horses. Yearlings are given 7 g. on two successive days and foals over four months old 5 g. on two successive days. The drug is given mixed in oatmeal, or other ground dry fodder.

To safeguard new-born foals from strongylosis, it is usual to treat the mares about 6–8 weeks before foaling and, or alternatively, two weeks after foaling, the droppings being removed and bedding changed frequently to prevent the young foals from picking up larval worms. During their first year of life the faeces of the foals are examined three times and the foals are treated with phenothiazine if necessary; otherwise they enter into the routine control treatment. It is, of course, necessary to treat all horses newly introduced to a farm under control.

The only sign of toxicity in treatment with phenothiazine in the way described is a slight degree of yellowing of the conjunctiva accompanied by any general malaise.—J. EDWARDS.

WETZEL, R. (1948.) Zur Epidemiologie des Lungenwurmefalls bei Rindern. [The epidemiology of lungworm infection in cattle.]—*Mh. Vet.-Med.* 3. 141–148. 2629

From examinations, made over a period of several months, of the faeces of calves and a few yearlings, W. concluded that young cattle acquire

an immunity against *Dictyocaulus viviparus*. This immunity develops slowly and is first evident 16–22 weeks after the initial infection and reaches its peak in animals 18 months–2 years old. In younger stock such an immunity does not indicate a complete absence of worms, for about 50% of calves remain carriers. The latter are responsible for new infestations, because larvae do not survive the winter on pastures.

The removal of stock from pastures and a change to stall feeding helps clinical recovery. Although drug therapy cannot be depended upon to destroy all the worms, it does enable the natural defensive powers to overcome the residue. W. concluded that lungworms can be eradicated if calves are separated from the young stock and crop rotation is practised.—M. L. CLARKE.

QUARANTE, M. (1949.) Du traitement des bronchites vermineuses par injections sous-cutanées d'un complexe organo-arsenical. [Treatment of parasitic bronchitis with subcutaneous injections of arsenic compounds.]—*Encyclopéd. vét. périod.* 6. 82–86. 2630

Q. reported favourable results in the prophylaxis and treatment of parasitic bronchitis in sheep, cattle, and pigs, following the subcutaneous injection of an arsenical derivative of pyrocatechin (catechol). He reported cures in sheep and cattle, after 2–3 injections at intervals of a few days and that when treatment was commenced in the spring cattle remained free from the infestation. The simultaneous use of the usual intratracheal drugs is recommended. In pigs the arsenic derivative is effective against *Metastrongylus* sp., but not against *Ascaris* larvae.—GEORGE M. URQUHART.

STEPHAN, S. A. R. (1949.) A note on the occurrence of the "gapeworm", *Syngamus trachea* in Natal.—*J. S. Afr. vet. med. Ass.* 20. 90–92. 2631

S. reported, for the first time, the occurrence of *S. trachea* in South Africa.

—F. S. MCCULLOUGH.

PICK, F. (1948.) Essai de développement des oeufs d'*Ascaris megaloccephala* sur des milieux solides. [Cultivation of eggs of *Ascaris megaloccephala* on solid media.]—*Bull. Soc. Path. exot.* 41. 208–212. 2632

Incubation at 36° C. on glucose-agar and glycerin-agar with or without previous soaking of the eggs in horse serum-Ringer solution, hastened the development of larvae, but they did not hatch. At 20° C. they hatched spontaneously in horse serum-Ringer or if transferred from it to glucose-agar or glycerin-agar.

—JAS G. O'SULLIVAN.

ACKERT, J. E., COOPER, R. M. & DEWHIRST, L. W. (1947.) Viability of *Ascaridia* eggs under varying conditions of age and administration.—*Trans. Amer. micr. Soc.* **66**. 383–389. 2633

Each of 10 chickens were given 100 embryonated eggs from 120-day-old culture of *A. galli*, and another 10 chickens were each given 100 embryonated eggs from 36-day-old culture. Three weeks later worms from each chicken were collected, counted and measured. 3.4 worms per chicken were obtained from the 120-day-old eggs, and the average length of the worms was 15.5 mm., compared with 10.2 worms, 23.6 mm. long, from the 36-day-old culture.

GEBAUER, O. (1949.) Ein Beitrag zur Früh- und Differentialdiagnose des Onchocercen-Befalles bei Widerristfisteln. [The early diagnosis of *Onchocerca* in fistulous withers in horses.]—*Wien tierärztl. Mschr.* **36**. 26–28. 2634

A clinical note.—W. R. BETT.

HULIN, P., ROBINET, A. H. & RIVIÈRE, R. (1949.) Un cas de spirocerose canine. [A case of spirocercosis (*Spirocerca lupi*) in a dog.]—*Bull. Serv. Elev. Industr. anim. A.O.F.* **2**. No. 4. pp. 37–38. 2635

The authors describe the illness of a three-year-old dog infested with *S. lupi* which died following rupture of an aneurysm of the aorta. The eggs were present in the faeces.

See also absts. 2690 (anthelmintics); 2766 (report, Ceylon); 2776–2777 (reports, British Honduras).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

DI DOMIZIO, G. (1948.) Un gruppo di tumori renali maligni degli animali domestici. [Neoplasms of the kidney in domestic animals.]—*Atti. Soc. ital. Sci. vet.* **2**. pp. 441–496. [English and French summaries.] 2638

Kidney tumours in a dog, three horses and 12 cattle were studied. Fourteen were malignant epitheliomas and two were sarcomas. D. divided the epitheliomas into three groups according to their structure:—(1) tumours consisting of cells similar to those of the Wolffian body; these were of various forms—solid, tubular, papilliform and mixed; (2) blastomas derived from adult epithelium or from elements of adult renal parenchyma; these were of the medullary, scirrhous or glandular type; (3) hypernephromas resembling in structure the cortical tissue of the adrenal gland.—E. G.

At P.M. examination the principal finding was a nodule (containing *S. lupi*) about the size of a pigeon's egg and involving the oesophagus, mediastinal lymph node and aorta. The worm was also present in the lumen of the oesophagus.

[The authors state that the ordinary hosts of the third stage larvae of *S. lupi* are lizards, toads, snakes and chickens. The true intermediate host is a beetle and the above mentioned animals become infected by eating infected beetles and act only as transport hosts.]

—K. B. SINCLAIR.

SVENKERUD, R. R. (1947.) Et tilfelle av invasjon av *Spirocerca sanguinolenta* hos blårev. [*Spirocerca lupi* in a silver fox.]—*Norsk VetTidsskr.* **59**. 193–201. [Abst. from English summary.] 2636

Spirocerca lupi, one male and one female were found in the connective tissue of the aorta of a silver fox.

The route of infestation and the life cycle in the body of the host are discussed.—E. G.

PAUTRIZEL, R., BEZIAN, A. & BAILANGER, J. (1949.) Etudes sur la toxicité des helminthes. I. Leur teneur en histamine. [The toxicity of helminths. I. Their histamine content.]—*Ann. Parasit. hum. comp.* **24**. 460–463. 2637

The quantity of histamine in species of *Ascaris* was between 3 and 15 µg. per 100 ml. extract. It was 6 µg. in hydatid fluid and 29 µg. in *Fasciola hepatica*. These quantities would not be responsible for toxic symptoms in the host animal.

—GEORGE M. URQUHART.

DODDS, E. C. (1948.) Carcinogenic and anti-carcinogenic substances.—*Lancet*. **255**. 837–842. Corrigendum. p. 954. 2639

A general discussion on the subject. Some of the synthetic modifications of folic acid, known as anti-folic-acid substances, may have an action on malignant growths, the cells of such growths possibly being more sensitive than are the normal body cells.

The effect of stilboestrol, androgens, urethane, nitrogen mustards, and nucleotides on malignant disease were also discussed. D. concluded that at present all the anti-carcinogenic substances and agents known act indirectly.

—M. R. ORMEROD.

ROUSSY, G., GUÉRIN, M. & GUÉRIN, P. (1943.) L'immunisation active contre la leucémie des

poules; premiers résultats. [Active immunization against fowl leucaemia.]—*Pr. méd.* 51. 645–646. 2640

In attempting immunization against fowl leucaemia the authors used preparations of whole blood containing both leucaemic cells and virus. They discussed the effect of repeated inoculations on the immunity of the fowls and described a number of experiments in which a

See also *abst.* 2786 (report, U.S.A.).

NUTRITIONAL AND METABOLIC DISORDERS

BLACK, W. H., ELLIS, N. R., JONES, J. M. & KEATING, F. E. (1947.) Relation between urinary calculi and use of grain sorghum in steer-fattening rations in the southern Great Plains.—*U.S. Dept. Agric. Tech. Bull.* 945. pp. 14. 2641

A series of feeding experiments with six groups each comprising eight steer calves were carried out over a period of three years to study the influence of various diets on the formation of urinary calculi. The findings indicated that the formation of calculi was related to the feeding of sorghum and to a lesser extent to the lack of phosphorus in the ration. The incidence of calculi could be controlled or even prevented by feeding maize in place of sorghum and by the use of phosphorus supplements in the form of bone meal. Calcium had no significant influence on the formation of calculi. It was stated that the formation of vesicle calculi in cattle fattened on sorghum may be controlled to some extent by feeding thrashed sorghum rather than unthrashed heads, with added phosphorus supplements.

—E. G.

KIVIMÄE, A. (1945.) Iakttagelser rörande kobolt som botemedel mot "mossjuka." [Observations on cobalt as a remedy for "mossjuka."]—*Svenska Vall-och Mosskultur fören Kvar-talsskr.* 7. 229–234. [Abst. in *Biol. Abstr.* 20. 25. (1946), slightly modified. Signed: T. R. SWANBACK.] 2642

"Mossjuka" is the Swedish name of a malnutrition disease in cows, caused by a deficiency of cobalt in the feed. The symptoms resemble those reported as "bush-sickness" in sheep from New Zealand. This is a report on investigations that led up to a correct diagnosis of the disease in cows in Estonia. The symptoms are lack of appetite, and decrease in weight and milk production. The animals will eat manure, soil, etc., and chew wood and bones. The indirect cause is a deficiency of Co in fodder especially that grown on reclaimed swamp land or poor sandy soils. A successful remedy (for animals

suitable form of antigen was sought. Treatment of the blood with glycerin over long periods at 0° C. proved unsatisfactory. Inactivation of the antigenic preparation by heat appeared to reduce the immunizing efficiency. Treatment of the blood with formalin preserved in the cold appeared to be the most satisfactory immunizing agent when repeated injections were given.

—G. FULTON ROBERTS.

not too far gone) is 4 gm. of $\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$ in 1 l. of water, administered at the rate of 10–13 mg. per day for 1–3 months.

BRAUDE, R., HENRY, K. M. & KON, S. K. (1948.) Further studies of the rachitogenic effect of dried yeast in pig diets.—*Brit. J. Nutrit.* 2. 66–75. 2643

Further experiments were carried out in an attempt to determine the nature of the rachitogenic factor in dried yeast [see BRAUDE, *et al.* *V.B.* 13. 295; & 15. 52]. The results threw little light upon the nature of the rachitogenic action, but certain findings of importance emerged.

The factor was shown to be present in autoclaved yeast, and must, therefore, be heat stable. The addition of only 2 g. per day of irradiated yeast to the high yeast diets prevented the occurrence of rickets, thus confirming, presumably, the protective action of vitamin D. Whereas calcium carbonate had hitherto been shown to exert a protective action, the addition of 2.5% of sodium bicarbonate was without effect.

It had hitherto been suggested that dried yeast might in some way inhibit the hydrolysis of phytic acid in the diet and so affect the availability of calcium and phosphorus to pigs. The current experiments disproved this hypothesis and in fact pigs receiving dried yeast did not excrete any measurable amounts of phytate phosphorus but when control pigs receiving a normal fattening diet containing 10% fish meal were transferred to a ration containing 10% meat-and-bone meal ration the amount of phytate phosphorus excreted in the faeces rose from negligible to measurable proportions.

In vitro tests did not confirm the published statements of HOFF-JORGENSEN (1947), that dried yeast inhibits phytase activity.

—ALASTAIR N. WORDEN.

JOHNSON, B. C., HAMILTON, T. S., NEVENS, W. B. & BOLEY, L. E. (1948.) Thiamine deficiency in the calf.—*J. Nutrit.* 35. 137–145. 2644

In a continuation of earlier studies [Johnson, B.C. *et al.*, 1947] the vitamin B₁ was excluded

from the "synthetic milk" diet of seven male calves. Seven other male calves served as controls.

In four of the vitamin B₁ deficient calves acute symptoms developed and death occurred before a cure could be obtained. The other three calves developed a more chronic deficiency syndrome, this being encouraged in one case by temporary dosage with vitamin B₁. The acute symptoms included almost complete anorexia for one or two days, severe scouring, and within a further 24 hours a severe dehydration, collapsed veins and death. In the more chronic manifestations a degree of anorexia was manifested for some days before further symptoms, which included a mucous discharge from the eyes and mouth (less severe than in riboflavin deficiency), impaired co-ordination of the legs, weakness, mild scouring, and either convulsions or constant muscular twitching. In these chronic cases the intravenous injection of 10 mg. of vitamin B₁ in 10 ml. of normal saline led to a remarkably rapid alleviation of symptoms. In one of the three calves continued administration of vitamin B₁ led to uneventful recovery, whereas the other two, which were not treated further, relapsed and died.

In the more chronic form of deficiency the daily urinary excretion of vitamin B₁ was usually below 10 mg., while blood and urinary levels of pyruvate were raised.—ALASTAIR N. WORDEN.

AUSTIN, C. R. (1947.) **The metabolism of thiamin in the sheep.**—*Aust. J. exp. Biol. med. Sci.* 25. pp. 147-155. 2645

Sheep kept in metabolism crates were fed varied rations and fasted, and blood and urine thiamine levels were determined: these both fall with starvation, but blood thiamine is constant with a thiamine deficient diet. Thyroxin has little effect on thiamine metabolism in the sheep, unlike the rat. Pregnancy increases blood thiamine levels. It is concluded that sheep are unlikely to be affected by thiamine deficiency if a preponderance of ruminal microflora are thiamine-synthesizing.—JOHN SEAMER.

ANON. (1949.) Kwaadaardige bloedarmoede en vitamien B₁₂, die kobalt-houdende vitamien. [Pernicious anaemia and vitamin B₁₂, the cobalt-containing vitamin.]—*S. Afr. med. J.* 23. 598-600. [In Afrikaans & English.] 2646

A general note on the subject.—E. EDEN.

ONEGOV, A. P., LAGUNOV, M. R. & MITROFANOV, M. V. (1949.) [Experimental vitamin B₁ and vitamin C deficiencies in foals.]—*Veterinariya, Moscow*. 26. No. 12. pp. 41-43. 2647

A colt and a filly, both 18 months old, were kept for six months on a diet which is described, and for the next five months the diet was varied so that the vitamin B₁ and vitamin C contents were low. There was progressive emaciation, in spite of a good appetite. The results of biochemical tests on certain tissues and body fluids are described.—F. A. A.

FILER, L. J., RUMERY, R. E., YU, P. N. G. & MASON, K. E. (1949.) **Studies on vitamin E deficiency in the monkey.**—*Ann. N.Y. Acad. Sci.* 52. 284-291. Discussion p. 291. [Abst. from authors' summary.] 2648

A chronic vitamin E deficiency in the *Macaca rhesus* monkey, in conjunction with a low fat diet, leads to slight but consistent changes in the electrocardiogram and pneumocardiogram relative to a control animal. The type of change observed is in accord with EKG studies on other species in vitamin E deficiency and is similar to some of the EKG changes recorded for thiamine-deficient monkeys.

CURNOW, D. H., ROBINSON, T. J. & UNDERWOOD, E. J. (1948.) **Oestrogenic action of extracts of subterranean clover (*T. subterranean* L. var. *Dwalganup*).**—*Aust. J. exp. Biol. med. Sci.* 26. 171-180. 2649

The "Dwalganup" strain of subterranean clover is presumed to possess an oestrogenic factor producing clinical disturbance in sheep. Ether extracts of the clover produced cystic glandular hypoplasia in the mature entire g. pig endometrium, but no abnormalities of the oestrous cycle. It was not possible to produce cystic endometrium in entire mice. In ovariectomized mice ether extracts caused vaginal cornification and opening and uterine hypertrophy, comparable to daily injections of 0.04 µg. oestradiol. Increases in uterine weight in ovariectomized g. pigs fed the extract were similar to those obtained from g. pigs injected with oestradiol. Limited fractionation of the active principle was carried out. A discrepancy between the oestrogenic potency of the principle in the experimental animals and that expected to produce effects in sheep was discussed, together with the effect of continued absorption of the oestrogen by grazing sheep.

—JOHN SEAMER.

KREHL, W. A. (1947.) **Research developments in dog nutrition.**—*J. Amer. vet. med. Ass.* 110. 121-124. 2650

When the protein intake of dogs was replaced by the ten essential amino acids, the growth, nitrogen balance and the production of

plasma proteins of the animals was not impaired. Mixtures of natural amino acids given intravenously were tolerated in higher concentrations than mixtures containing racemic amino acids. *dl*-Methionine was the most toxic. Proteins of vegetable origin were satisfactory for the growth of puppies. Mention was made of canine hysteria caused by diets containing baked wheat products and the unsuccessful treatment with vitamin B₁ or with amino acids [see MELLANBY, *V.B.* 17. 33]. The vitamin B requirements of the dog are met by supplements of niacin, vitamin B₁, riboflavin, pyridoxine, pantothenic acid and choline to an otherwise synthetic ration devoid of the vitamin B-complex. Feeding of succinyl sulphathiazole did not produce any additional deficiencies, indicating that the bacterial flora of the dog is relatively resistant to modification. Riboflavin is concerned with blood regeneration. In the absence of riboflavin in the diet, phlebotomy produced a microcytic hypochromic anaemia, while with supplements of riboflavin the anaemia was of the normocytic, hypochromic type. The sudden collapse of riboflavin-deficient dogs is characterized by a fall in the respiration rate and by cardiac abnormality. Prolonged riboflavin deficiency produced neurological changes with myelin degeneration of peripheral nerves. With a pantothenic acid deficiency dogs develop rapid pulse and respiratory rates, convulsions and intestinal disorders and tend to collapse and die suddenly.

The requirements of puppies for choline are met by about 50 mg. per kg. body weight per

day. Pyridoxine-deficient dogs develop a microcytic, hypochromic anaemia. Addition of tryptophane to the diet causes excretion of kynurenin and xanthurenic acid, while addition of pyridoxine causes an excretion of kynurenin and kynurenic acid only. Synthetic folic acid seems to be needed by young dogs with a niacin deficiency. The curative effect of nicotinic acid in black-tongue can be counteracted by sulphonamides. Milk and fresh liver overcome this inhibition. Dogs, like rats, increase their requirements of nicotinic acid when maize is fed with a niacin- and protein-low diet. Casein, extracted with 95% ethanol and fed to dogs caused a drop in haemoglobin, diminished the rate of growth and produced a severe achromotrichia. The haemoglobin deficiency could be corrected by biotin. Synthetic rations with a vitamin B-complex deficiency produced a spastic paralysis, which later became flaccid. Brewers' yeast or biotin prevented this paralysis. Potassium salts cured this paralysis. Vitamin K is supplied by the intestinal flora. The role of vitamin E for the dog's nutrition is still obscure. Vitamin D requirements of the dog depend on many factors, including sex, breed and Ca:P ratio. Under normal conditions a daily dose of 10–20 I.U. of vitamin D per kg. body weight appeared to be sufficient. Vitamin A deficiency in the dog is characterized by the same mouth lesions as are found in niacin deficiency. The dog requires calcium, phosphorus, sodium, chlorine, potassium, iron, copper, and iodine and probably manganese, cobalt and zinc.—E. KODICEK.

See also *absts.* 2660 and 2662 (fatal syncope in pigs); 2701 (thiaminase); 2702 (metabolism of adrenalin); 2703 (water metabolism); 2705 (thiamine); 2776–2777 (reports, British Honduras); 2779 (report, Leeward Islands).

DISEASES, GENERAL

CORWIN, E. H. L. [Ph.D.] [Edited by.] (1949.) *Ecology of health.* pp. xii+196. New York: The Commonwealth Fund; London: Geoffrey Cumberlege. 20s. **2651**

This symposium is concerned with some fundamental aspects of human health; therefore some parts of it are of somewhat remote interest to the veterinarian. The chapters dealing with genetics; maternal health and nutrition; animal and insect reservoirs of disease, and climate are of more direct interest. The discussion of the problems likely to be created by curative treatment of hereditary defects is of very special interest; the danger of accumulation of harmful mutant genes in a population is increased as methods of treatment are improved—M. C.

SEDDON, H. R. (1948.) *A review of communicable diseases of animals in Australia, with indications of their economic importance, distribu-*

tion and incidence in 1946–47.—pp. 37. Department of Health. Service Publication (Division of Veterinary Hygiene) No. 3. **2652**

The communicable diseases and parasites of livestock which occur in Australia are listed under five headings, namely virus diseases, protozoan diseases, bacterial diseases, parasites and diseases of doubtful aetiology. The distribution and general incidence of each disease in the different states is given. Diseases such as tetanus where infection is from the soil are not included.

There is also a list of the diseases and parasites which are not present in Australia or which had been introduced in the past but had been speedily eradicated. This list includes many of the major diseases such for example as rinderpest, foot and mouth disease, equine encephalomyelitis, rabies and swine fever. There are four maps which give the distribution of (a) the cattle

tick, *Boophilus microphilus*, (b) anthrax, (c) bovine contagious pleuro-pneumonia and (d) the buffalo fly, *Siphona (Lyperosia) exigua*.—M. C.

SINEV, A. V. (1946.) [Examination of stomach and intestinal contents of horses with certain disorders of the alimentary tract.]-*Veterinariya, Moscow*. 23. No. 10-11, pp. 30-32 2653

A note on observations made with a view to improvement in the means for the diagnosis of gastric and intestinal disorders in horses, particularly the diagnosis of impaction, volvulus, intussusception. Observations are made on general characters that can be observed *ante-* and *post-mortem*.—F. A. A.

BODINGBAUER, J. (1949.) Ein Fall von Ostitis fibrosa des Schädels mit augenfälliger Beteiligung des Zahnsystems bei einem Pony. [Osteoporosis and dental changes in a pony.]—*Wien. tierärztl. Mschr.* 36. 63-71. 2654

There were hypoplasia of the cement of the molar teeth and of the enamel of the incisors of a 20-year-old pony affected with osteoporosis. In addition the roots of the molars were of abnormal shape and the intra-alveolar spaces, particularly of the maxillary molars, were narrow. —E. G.

LAHTONEN, A. (1948.) Hevosten tarttuvasta silmän sidekalvontulehduksesta. [An infectious conjunctivitis in horses.]-*Suom. Eläinlääkäril.* 54. 144-155. [Swedish summary.] 2655

A clinical account of an outbreak of infectious conjunctivitis among horses in a large quarantine stables in Finland in September 1947. In 69% of cases the condition cleared up within a week without further treatment. In 27% the condition persisted longer and in 4% there was a parenchymatous conjunctivitis with rather severe swelling. Healthy horses stabled with affected ones developed the disease after one or two days. L. believes that this disease has not previously been described in the literature. He speculates whether it has some connexion with an infectious rhinitis described earlier [reference not given]. Symptomatic treatment was given. —F. E. W.

DIERNHOFER, K. (1949.) Zum neuen Bundesgesetz über die Bekämpfung der übertragbaren Geschlechtskrankheiten der Rinder. I, II, & III. [The new federal law for the control of infectious venereal diseases in cattle. I, II & III.]—*Wien. tierärztl. Mschr.* 36. 173-177; 286-298; & 360-374. 2656

This new Austrian federal law has arisen from the law concerning the venereal diseases in cattle passed in Germany in 1937. The owner of infected cattle (under which heading are in-

cluded cases of abortion as well as animals that are infertile owing to disease of the genital tract) has to notify the county veterinarian. With the help of the local veterinarian all sexually mature cattle of a village must be examined. All the female animals must be marked with earclips of different colours according to their state of health, animals that are not likely to recover from an infection of the genital organs being distinctively marked. No breeding is allowed till all animals have been treated. Animals marked as incurable are eliminated. In special cases, artificial insemination may be enforced, but may be carried out only by a veterinarian. D. described methods for detecting bulls infected with venereal disease. The law deals mainly with trichomoniasis and with vesicular exanthema; treatment of the latter is not advised. Treatment of cows for trichomoniasis must be carried out, preferably with some iodine compound or with a 0.2% solution of chloramine.—R. ROSS-RAHTE.

SAURER, H. (1949.) Die Konjunktivo-Keratitis infectiosa des Rindes. [Infectious keratoconjunctivitis in cattle.]-*Schweiz. Arch. Tierheilk.* 91. 581-608. 2657

An account of a clinical study of infectious kerato-conjunctivitis in cattle which occurs throughout Switzerland during the summer months while the cattle are on the Alpine pastures. In affected herds about 5% of the animals contract the disease. Bodies were demonstrated from the conjunctival epithelium of affected eyes which S. describes as inclusion bodies resembling rickettsia. He suggests, without providing any evidence, that the chamois may be a source of infection.—E. G.

OEHMICHEN, F.-O. (1949.) Über Degenerationen im Herzmuskel eines Kamelfohlens. [Myocarditis in a camel.]-*Inaug. Diss., Hannover*. pp. 22. 2658

Three camels aged 12 to 18 months died suddenly at the Hanover zoo. A detailed examination of one of them was made when only lesions in the heart were noted. Hyalin degeneration of the heart muscle with lymphocyte, histocyte and fibroblast infiltration was present, together with fatty infiltration of the muscle fibres and degeneration of individual Purkinje fibres. From an examination of the literature, the condition was considered to be very like so-called transport myocarditis of calves and it was suggested that an avitaminosis might be the underlying cause.—J. A. NICHOLSON.

CAPARÓ, A. C. (1949.) Policitemia de la altura en corderos. [High altitude polycythaemia

(erythrocytosis) in lambs.]—*Rev. Fac. Med. vet., Lima*. 4. 5–8. [English summary.] 2659

A preliminary note on a disease in lambs at high altitudes. Among 100 cross-bred Corriedale lambs kept at 3,900m. above sea-level and bred at an altitude above 4,000m. seven were found at slaughter to have considerable dilatation of the right ventricle and also enlargement of the liver. The same picture was observed P.M. in 1949 in four of a batch of lambs examined from a similar altitude (3,910m.). Clinical examination was made of one sick lamb, 2½ months old and a blood count revealed 19,620,000 erythrocytes per ml. Such an erythrocytosis was considered sufficient to account for the lesions observed. The clinical symptoms and the lesions were described in detail.—F. E. W.

BARTEL, H. (1949.) Zur Ätiologie des Herztodes der Schweine. [Aetiology of fatal syncope in pigs.]—*Mh. Vet.-med.* 4. 225–230. 2660

In the disease as the author saw it in 1947 symptoms were interference with locomotion, constipation, cyanosis of the ears and marked bradycardia. The outbreaks were traced to a high carbohydrate diet especially of potatoes from that year's harvest. It was regarded as a vitamin B deficiency and treated as such. In cases seen in 1949 P.M. findings were discolouration of the thyroid and heart, paleness of the musculature and other signs of cardiac failure. The syndrome varied from that seen in 1947. In most cases there was diarrhoea and dyspnoea, and the tongue, discoloured blue, hung from the mouth as though paralysed; in the region of the incisors there were small areas of superficial ulceration, not so marked, however, as in cases of vitamin C deficiency. In all cases there was a very marked tachycardia as opposed to the bradycardia of the previous outbreak. The condition was diagnosed as a deficiency of vitamin A. Vitamin A given *per os* to affected piglets was ineffective; provitamin A containing α , β and γ carotene injected intramuscularly gave good results. It is postulated that vitamin A counteracts the excessive activity of thyroxin and that a vitamin A deficiency will lead to a thyrotoxicosis with ultimate histopathological changes in the thyroid itself. The cases usually occurred 1–3 weeks after the feeding of potatoes. It seems therefore that deficiency of vitamins A and B either together or independently play a part in cardiac failure. A high potato diet should be supplemented with foods containing vitamins A and B or with a mixture containing these vitamins.—M. SACHS.

ENGELKE, J. (1949.) Endemisches Vorkommen der Periarteriitis nodosa beim Schwein. [Periarteriitis nodosa in pigs.]—*Inaug. Diss., Hannover*. pp. 16. 2661

Two pigs which died naturally and six which were slaughtered as casualties out of a herd of 27 were examined P.M. Lesions of periarteriitis nodosa were found in the heart, kidney, spleen, thyroid gland and lymph nodes. An account is given of the histology of lesions. E. suggested that an allergic reaction to haemolytic streptococci and perhaps to *Erysipelothrix rhusiopathiae* is the basic cause of the condition.

—L. M. MARKSON.

SCHIEREN, J. (1946.) Fütterungsversuche mit Zink zur Erzeugung des enzootischen Herztodes der Schweine. [Attempts to produce fatal syncope in pigs by feeding zinc.]—*Berl. Münch tierärztl. Wschr.* August. pp. 15–18. 2662

Feeding pigs either with potato silage which had stood in zinc vessels and dissolved some zinc, or with pure zinc acetate (up to 4,080 g. over a 106-day period) in the food, produced no clinical or pathological appearances. The zinc content of the liver in pigs so treated was greatly in excess of that of control pigs and of pigs that had died of fatal syncope. The presence of zinc in the liver of pigs dead of fatal syncope does not, therefore, appear to indicate that zinc poisoning was responsible for their death.

—R. MARSHALL.

VIANELLO, G. (1948.) L'enterite necrotica superficiale dei suini nella pianura lombarda. [Necrotic enteritis of swine in Italy.]—*Clin. vet., Milano*. 71. 76–89. [French summary.] 2663

The author identified this infection with the swine dysentery reported by Doyle, L. T., in America. In Italy it occurs mainly in the Lombardy plain, in medium to large herds and affects principally pigs 2–8 months old causing losses of 5–70%. The symptoms and P.M. appearances are described. The disease could be transmitted to healthy pigs by administration *per os* or *per rectum* of a suspension, in physiological saline, of intestinal content from infected pigs.—K. SLAVIN.

MARAGLIANO, G. (1948.) Sulla genesi allergica della necrosi acuta del pancreas. Ricerche sperimentali. [The anaphylactic nature of acute necrosis of the pancreas. Experimental research.]—*G. Batt. Immun.* 38. 129–140. [English, French & German summaries.] 2664

M. produced the Auer phenomenon in the pancreas of a rabbit and observed degenerative, necrotic, anaphylactic lesions, similar to acute

necrosis of the pancreas. In his opinion anaphylaxis may be an important factor in the pathogenesis of acute necrosis of the pancreas.—E. G.

I. KOENIG, H. & KOENIG, R. (1949.) **Production of acute pulmonary edema by ammonium salts.**—*Proc. Soc. exp. Biol.*, N.Y. 70. 375–380. 2665

II. KOENIG, H. & KOENIG, R. (1949.) **Studies on the pathogenesis of ammonium pulmonary edema.**—*Amer. J. Physiol.* 158. 1–15. 2666

I. Acute pulmonary oedema was produced in cats, rabbits, g. pigs and rats by the administration of ammonium chloride at dosage and by routes stated.

II. Acute pulmonary oedema as described in I was produced and the effect of certain drugs, among others, nembutal, morphine and ether, and also the influence on the condition of vagotomy, adrenalectomy, ablation of brain areas, and sympathectomy and spinal section were studied. Other experiments are also recorded.—D. E. DONALD.

BIGGART, J. H. [C.B.E., M.D., D.Sc. Professor of Pathology, Queen's University, Belfast.] (1949.) **Pathology of the nervous system. A student's introduction.**—pp. xii + 352. Edinburgh: E. & S. Livingstone, Ltd. 2nd Edit. 21s. 2667

This book is here reviewed from the point of view of the veterinarian who, desiring to broaden his understanding of disease, must per-

force constantly turn to medical text-books; this may be necessary to obtain standards of comparison or indeed information that is not at present available in veterinary literature. The book is designed to be an introduction to the subject for medical students. The author has maintained the relationship between neuropathology and general pathology and the text is thus written in a form that is capable of being more easily understood by a general reader than if it were written purely as a treatise on neurology.

There are excellent chapters at the beginning dealing with the general principles of the effects of disease on the different component tissues of the nervous system—neurones, axis cylinders, glia and cerebrospinal fluid. These are followed by separate chapters on vascular disease in relation to the brain, bacterial and virus diseases, intoxications and degenerations, demyelinating diseases, injuries, tumours and errors in development. At the end of each chapter there is a very useful selected bibliography of original papers. The illustrations are all they should be in any textbook on pathology and the care is obvious with which the author has selected fields and magnifications so that the student can clearly see what he is intended to observe with the naked eye or with the microscope. The photomicrographs include many pictures showing changes which follow in the train of disease and can only be depicted by using highly selective neuropathological techniques. No veterinarian with an interest in nervous diseases of animals should be without this book.—J. R. M. INNES.

POISONS AND POISONING

v. d. BURG, W. B. (1949.) **Chronische arsenicumvergiftiging bij 28 paarden. [Chronic arsenic poisoning in 28 horses.]**—*Tijdschr. Diergeneesk.* 74. 289–292. [English & French and German summaries.] 2668

An account of illness in 28 horses attributed to arsenic poisoning resulting from fumes from the chimney of a blast furnace. Arsenic was demonstrated in the urine. Illness occurred for up to a year in individual horses. There was difficulty in swallowing and posterior paralysis. Pneumonia supervened.

DIERNHOFFER, K. (1947.) **Über die Krankheitsbilder der Kupfervergiftung bei Rindern. [Case-histories of copper poisoning in cattle.]**—*Wien. tierärztl. Mschr.* 34. 220–221. 2669

In cases of copper poisoning in cattle discussed in the literature after ingestion of copper sulphate or copper oxide, the symptoms appear

to be of two types. If the copper is rapidly precipitated it is not absorbed and causes irritation of the digestive tract. If it forms soluble complexes and is absorbed nervous and muscular symptoms develop.—R. MARSHALL.

BEIJERS, J. A., DE WAELE, J. & SEEKLES. (1949.) **Een geval van subacute loodvergiftiging bij runderen. [Subacute lead poisoning in cattle.]**—*Tijdschr. Diergeneesk.* 74. 436–443. [Abst. from English summary.] 2670

Cocoonut meal containing 1% of lead caused illness in 8 out of 13 cows and 4 died.

—R. MARSHALL.

CHENOWETH, M. B. (1949.) **Monofluoroacetic acid and related compounds.**—*Pharmacol. Rev.* 1. 383–424. 2671

Monofluorinated compounds of which monofluoroacetic acid is an example may be very toxic substances having pharmacological actions

of remarkably different character in different species. C. discussed the literature and the contributive value of a study of these compounds to the pharmacological and biochemical understanding of drug actions.

Marais [see *V.B.* 17. 203] isolated potassium monofluoroacetate from the South African plant, *Dichapetalum cymosum*, known locally as "Gifblaar" which is a well-recognized hazard to stock and cattle.

A metabolic intermediate may be converted into a very toxic compound by the introduction of one fluorine atom in a certain position in the molecule. Such substances on account of their resemblance to natural metabolites could differentiate metabolic pathways in a large number of species. The variation among species in response to monofluoroacetic acid has been related to certain definite differences in metabolism in the species studied.—E. M. J.

WELCH, H. (1948.) Tests of the toxicity to sheep and cattle of certain of the newer insecticides.—*J. econ. Ent.* 41. 36–39. 2672

Details are given of toxicity tests on cattle and sheep of the following chlorinated hydrocarbons:—D.D.T. in very finely powdered form; benzene hexachloride (50% wettable powder, 5% γ -isomer); technical grade methoxy analogue of D.D.T., 1-trichloro-2, 2-bis (*p*-methoxyphenyl) ethane; (all in the form of suspensions in water), and technical grade chlordane emulsified in water after being dissolved in an equal quantity of xylene.

Chlordane proved to be very toxic, killing sheep at a dosage rate of 1 g. per kg., and causing severe illness at half this dose. Methoxy analogue of D.D.T. was non-toxic at the rate of 2 g. per kg. One g. per kg. of D.D.T. or benzene hexachloride produced toxic symptoms, but even 2 g. per kg. failed to kill.—G. B. S. HEATH.

WALKER, D. J. (1947.) Carbon tetrachloride poisoning in sheep.—*Yearb. Inst. Insp. Stk. N.S.W.* 1947. pp. 57–58. 2673

Four further instances of carbon tetrachloride poisoning in sheep associated with a rising plane of nutrition are described. W. attributed the deaths of 12 sheep, which occurred after drenching, to poisoning with carbon tetrachloride, 11 being associated with growing green feed.—D. F. STEWART.

TILLMANN, S. (1947.) Vergiftungen bei Pferden nach Aufnahme von pilzbefallenem Futter. [Poisoning in horses from mouldy fodder].—*Dtsch. tierärztl. Wschr.* 54. 325–328. 2674

Horses of both sexes and of various ages fed on mouldy fodder in Italy in 1944 developed infection with a fungus of the *Mucor* type. The condition resembled *Stachybotrys* infection.

The cause was not determined. Details are given of results of bacteriological examinations, various organisms having been identified.

—J. JONAS.

HORNE, C. H. (1948.) Dallis grass poisoning.—*Texas Vet. Bull.* 10. No. 31. 2675

Thirty cattle were removed in early autumn from a dried-up clover pasture to Dallis grass (*Paspalum dilatatum*) grown for seed but not cut, upon which three cattle had been grazing throughout the year and remained healthy. Next morning one cow was found down and several others were nervous and staggering and went down within the day. Symptoms persisted for up to 36 hours. Yearlings and younger animals were unaffected.

H. stated that it is common knowledge in one area that cattle new to Dallis grass pasture will be nervous and stagger for some time, whereas cattle native to that pasture are unaffected. He believes the condition to be distinct from ergot poisoning.

—ALASTAIR N. WORDEN.

EVANS, W. C. & EVANS, E. T. R. (1949.) Studies on the biochemistry of pasture plants—No. 3. The effects of the inclusion of bracken (*Pteris aquilina*) in the diet of rats, and the problem of bracken poisoning in farm animals.—*Brit. Vet. J.* 105. 175–186. 2676

Three batches of rats were used, all being given regular doses of "radiostoleum" (a proprietary preparation of vitamins A and D in oil) and α -tocopherol acetate. Controls were given a basal diet which included yeast. The experimental rats were given 60% of the basal diet given to the controls plus 40% of dried powdered bracken, one batch receiving bracken gathered green in July and the other batch withered bracken gathered in October. The rats fed on the diet containing the powdered withered bracken remained healthy, while the rats receiving the powdered green bracken developed vitamin B₁ deficiency within a week. When the latter were given 0.1 mg. of aneurin a few days before death was likely to occur there was dramatic recovery and relapse unless the dosage was continued.

In the vitamin B₁ deficient rats the vitamin B₁ content of the blood was low and the pyruvic acid content was high. Similarly it was found that the level of vitamin B₁ in the blood of cattle

recovering from bracken poisoning varied from 3.8 to 6.5 $\mu\text{g.}$ per 100 ml.

The authors discussed the causation of bracken poisoning and suggested that green bracken contains a thermostable compound which splits the aneurin molecule. Green bracken inactivates aneurin *in vitro*.

—G. V. LAUGIER.

See also absts. 2637 (toxicity of helminths); 2776 (report, British Honduras).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease.)

AMMANN, K. (1949.) Histamin und Antihistaminica in der Tiermedizin. [Histamine and antihistamine compounds in veterinary medicine.]—*Schweiz. Arch. Tierheilk.* **91**. 691–706. 2678

A general discussion.—R. MARSHALL.

MAYNERT, E. W. & VAN DYKE, H. B. (1949.) The metabolism of barbiturates.—*Pharmacol. Rev.* **1**. 217–242. [Authors' summary slightly modified.] 2679

Much published work on the metabolism of the barbiturates cannot be accepted as reliable because of the lack of specificity of the methods of determining the drugs. Colorimetric and ultraviolet spectrophotometric methods are sensitive, but they cannot distinguish the drugs from those metabolic products which also are barbiturates. (They are satisfactory only for barbital, which is not degraded *in vivo*). The gravimetric method properly executed gives reliable results, but the sensitivity is not great. Isotope dilution procedures can be both sensitive and specific, but they require considerable special equipment. Pharmacological methods are neither sensitive nor specific.

It appears that the drugs are rapidly and completely absorbed. Perhaps they vary slightly in the rate at which they enter cells. Probably they leave cells readily, as the plasma level falls. The rates of excretion or degradation or both likewise vary and are the more rapid, the shorter the duration of action. Barbital is excreted without change in the urine, as also are appreciable fractions of doses of phenobarbital, alurate, dial and rutilal. Only very small amounts of the other barbiturates escape metabolic alteration which occurs principally but not solely in the liver.

The identification of substances arising from the metabolic degradation of barbiturates is difficult and laborious. The products isolated result from the dealkylation of N-alkyl drugs

POICHET, R. (1949.) Des intoxications alimentaires d'origine végétale chez les porcins. [Plant poisoning in pigs.]—*Thesis, Alfort*. pp. 74. 2677

The various plants known to be poisonous for pigs were listed, with notes concerning their toxicity. The pertinent literature was reviewed and the various factors influencing plant poisoning in pigs were discussed.—D. LUKE.

(e.g. prominal) or partial oxidation of an alkenyl or alkyl group in the 5 position (e.g., phanodorn, evipal and pentobarbital) or both (e.g. evipal). Drugs containing the 2-bromallyl group (e.g., nostal and pernocton) undergo hydrolysis of the bromine to yield acetonil derivatives.

SMITH, P. K. (1949.) Certain aspects of the pharmacology of the salicylates.—*Pharmacol. Rev.* **1**. 353–382. [Author's summary modified.] 2680

Salicylates are rapidly absorbed from all portions of the gastrointestinal tract, absorption being most rapid in the small intestine from slightly acid solutions. Distribution is throughout the body, appreciable amounts being within the cells. Degradation includes partial oxidation or conjugation with glycine or glucuronic acid. Excretion is moderately rapid, the free salicylate being excreted more rapidly when the urinary pH is high.

The salicylates are among the least toxic of commonly used drugs. Large doses may produce a transient fall in plasma prothrombin, but there is seldom a hemorrhagic tendency. Nausea and vomiting are usually associated with high plasma levels and are primarily central in origin. Large doses stimulate respiration; this produces an alkalosis which may continue until a ketosis develops.

It is not known whether the salicylates act *per se* or through the degradation product, gentisic acid. There is some question whether the compound inhibits hyaluronidase. The drug fails to prevent anaphylactic shock whereas the salicylates are effective.

Speakers:—FILDES, P., WOODS, D. D., McILWAIN, H., WORK, T. S., RYDON, H. N., ROSE, F. L., WALKER, J., ALBERT, A. & STACEY, M. (1949.) A discussion on antibiotic activity of growth factor analogues.—*Proc. roy. Soc. Ser. B.* **136**. 145–181. 2681

Fildes in opening the discussion outlined the mechanism of syntheses taking place in bacteria and indicated that greater knowledge of the physiology of blood and of the mechanism of an inhibitor is required in order to design the right sort of analogue of the right sort of growth factor to give practical results.

Woods discussed the mode of action of the sulphonamides, and the possible anti-metabolite action of other growth inhibitors; the metabolite analogues as tools in fundamental research; and the possibility that a given substance may act as a growth inhibitor for one organism and as a growth factor for another organism.

McIlwain dealt with the functional relations between analogue and growth factor under three main headings (i) antagonism in action, (ii) specificity of action and (iii) characters of the action of the analogue.

Work examined current theories on metabolite analogues and assessed their value as a pointer towards further progress, beginning with Ehrlich's receptor theory.

Rydon discussed the design of bacterial inhibitors modelled on growth factors.

Rose described some anti-malarial agents as possible growth-factor antagonists.

Walker gave a general discussion.

Albert discussed the anti-bacterial action of oxine (8-hydroxyquinoline).

Stacey discussed the mode of action of anti-bacterial agents. He considered that a knowledge of the chemistry of the magnesium ribonucleo-protein is a prerequisite to further research. Magnesium plays a vital role in bi-molecular polymerization.—E. M. J.

SCHERMER, S. (1949.) Untersuchungen über die Verweildauer des Penicillins im Tierkörper bei verschiedenen Lösungsmitteln. [The persistence of penicillin in the body.]—*Dtsch. tierärztl. Wschr.* 56. 250–252. 2682

In tests on ten horses and nine dogs aqueous solutions of penicillin given subcutaneously and intramuscularly maintained a good penicillin content in the blood for two and a half hours. Similar dosage of penicillin in wax and oil lasted about three times as long. Procaine penicillin in wax and oil lasted 11 times as long. Size of dose did not influence the duration of the effect as much as the nature of the solvent.

—R. MARSHALL.

DOLL, E. R. & WALLACE, M. E. (1949.) The serum level response of horses to aqueous solutions of penicillin.—*Vet. Med.* 44. 34–38. 2683

A note on observations made on horses and sheep.—NESTA DEAN.

HAUSMANN. (1949.) Febrilat—ein neues Mittel zur Heilfiebererzeugung. [Febrilat—a new agent for producing artificial fever.]—*Berl. Münch. tierärztl. Wschr.* No. 8. p. 106. 2684

An account of the fever-producing capacity of lipid extracts from bacteria of the paratyphoid-enteritis group on horses, dogs and pigs, the results being tabulated.

—G. P. MARSHALL.

FRIED, K. J. (1948) Elektrokardiografické štúdie o účinku helvedrinu na srdce psa. [Effect of helvedrin on the electrocardiogram in dogs.]—*Čas. československ. Vet.* 3. 594–598; & 694–699. [Abst. from French summary.] 2685

In dogs under full chloral hydrate narcosis the effect of subcutaneous or intravenous injection of a proprietary preparation of ephedrine and adrenalin was studied electrocardiographically. Recordings were made on Leads I, II and III standardized at 1 millivolt = 1 cm. The subcutaneous doses did not produce significant alteration of the E.C.G. Considerable disturbances of rhythm and conduction were noted following intravenous dosage (partial A/V block, complete S/A block and A/V rhythm, arrhythmia of auricular origin, occasional auricular and ventricular extrasystoles). One case of fatal ventricular fibrillation was recorded.

—D. E. DONALD.

BEKKER, P. M., GRAF, H., MALAN, J. R. & VAN DER MERWE, S. W. (1949.) Die vergelykende waarde van arseen, B.H.C. en D.D.T. indien gebruik in dipbakke teen bosluise op beeste. [The relative efficiency of arsenicals, benzene hexachloride and D.D.T. in tick dipping tanks.]—*J. S. Afr. vet. med. Ass.* 20. 110–124. [In Afrikaans. Abst. from English summary.] 2686

The authors discuss the use of D.D.T. or benzene hexachloride (B.H.C.) with arsenic in dipping tanks. Without arsenic the dips lose their strength fairly rapidly; it is difficult to keep a rapid check on their strengths and their efficiency is unsatisfactory against ticks.

A concentration of 0.5% D.D.T. with 0.04% As_2O_3 as a preservative for the emulsion gives a complete tick control; and for comparable results with benzene hexachloride 0.03–0.05% of γ -benzene hexachloride would be needed. These concentrations are not however economical under South African conditions.

Arsenic dips are the cheapest, and D.D.T. and B.H.C. are used as an addition to an arsenical dipwash containing a minimum of 0.16% As_2O_3 .

There is a table giving costs of dipping.

TEW, R. P., DAVID, W. A. L. & BUSVINE, J. R. (1951.) **Factors affecting the efficiency of aircraft disinsectisation procedures.**—*Mon. Bull. Min. Hlth. publ. Hlth. Lab. Serv.* **10.** 30–38. [Abst. from authors' recommendations.] **2687**

The following recommendations regarding aircraft disinsectisation may be made:—Use (1) a low-pressure aerosol dispenser, containing 0.4% pyrethrin and 3% D.D.T.; a special type was used. (2) a dosage of 10 gm. per 1,000 cu. ft. (3) a dispenser distributing not more than 1 gm. per second, otherwise it is difficult to get round the plane without overdosing. Keep the doors closed for not less than 5 minutes (or longer if convenient) after all the spray has been applied. Although disinsectisation may be effected while passengers are in the plane at dosages which passengers might not find objectionable, their presence is likely to interfere with the distribution of the aerosol apart from providing more sheltering places for insects.

ROAN, C. C. & KEARNS, C. W. (1948.) **Testing insecticide sprays.**—*Soap & Sanit. Chem.* **24.** 133, 135, 137; & 149, 151, 153. **2688**

The authors discuss the factors involved in the design and use of apparatus for the biological evaluation of insecticides.—W. MOORE.

NOTTBOHM, H. & JACOBS, K. (1947.) Untersuchungen über zwei neuere Desinfektionsmittel Grobantol und Finantol. [Two new disinfectants grobantol and finantol.]—*Dtsch. tierärztl. Wschr.* **54.** 235–237. **2689**

An account of laboratory tests of two proprietary cresol preparations against various pathogenic micro-organisms.—NESTA DEAN.

GUILHON, J. (1948.) Recherches sur les propriétés anthelminthiques de quelques dérivés de la thiodiphénylamine. [Anthelmintic properties of phenothiazine derivatives.]—*Bull. Acad. vét. Fr.* **21.** 227–232. **2690**

See also absts. 2475–2477 (*Str. agalactiae* infection); 2478–2481 (penicillin in mastitis); 2482 (streptomycin); 2500 (pneumonia in cattle); 2503 (sulphonamides); 2516 (streptomycin in brucellosis); 2519 (aureomycin in brucellosis); 2529 (epizootic lymphangitis); 2542–2543 (trypanosomiasis); 2550 ("neotodorit" in cattle coccidiosis); 2551 and 2553 (coccidiosis); 2606 (ACTH and cortisone); 2617, 2619 and 2621 (benzene hexachloride); 2618 (insecticides); 2620 and 2628 (phenothiazine); 2626 (tapeworm anthelmintic); 2630 (parasitic bronchitis treated with arsenic); 2639 (carcinogenic and anticarcinogenic substances); 2672–2673 (toxicity of insecticides); 2740 (D.D.T. as rodenticide).

Twelve derivatives of phenothiazine obtained by oxidation or the introduction of various radicals, aliphatic or aromatic, into the phenothiazine molecule were tested for anthelmintic activity against *Ascaridia columbae* in pigeons. One was one third as active as phenothiazine and the others were inactive.

—J. EDWARDS.

HENDERSON, W. M. (1948.) **Further consideration of some of the factors concerned in intracutaneous injection of cattle.**—*J. Path. Bact.* **60.** 137–139. [Author's summary copied verbatim.] **2691**

Experiments are described in which india ink has been demonstrated in the pre-scapular lymph node of the ox within 40–50 seconds of the intracutaneous injection of the neck with volumes as small as 0.1 c.c. An intracutaneous injection is almost entirely intralymphatic and this rapid flow towards the regional lymph node is largely the result of the pressure required to make the injection. The possible significance of these observations is mentioned in connection with the intracutaneous injection in veterinary practice of diagnostic agents such as tuberculin.

COWLES, P. B. & KLOTZ, I. M. (1948.) **The effect of pH upon the bacteriostatic activity of certain nitrophenols.**—*J. Bact.* **56.** 277–282. **2692**

An account of bacteriostatic power of eight nitrophenols. The bacteriostatic potency is correlated with the acid strengths of the compounds—a weakly acidic substance inhibits at about the same concentration for a pH range 5.5–8.5, but a more acid compound may undergo a 60-fold change in potency through the same range. The activity is due to the undissociated molecule. Formulae are given for semi-quantitative correlation with the experimental findings.

—MALCOLM WOODBINE.

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

FLESCH, P. (1949.) **The role of copper in mammalian pigmentation.**—*Proc. Soc. exp. Biol.* **N. Y.** **70.** 79–83. **2693**

Copper has a greater catalytic effect in the autoxidation of dopa (l-dihydroxyphenylalanine) than Co, Ni, Mn, Pb, or Fe. One mole of cupric ion was able to counteract the inhibition of the autoxidation of dopa produced by about 500 moles of cystine.

The copper content of hair of different colours is discussed.

Melanin contained 4–13 times more copper than melanoma tissue.

The theory is advanced that copper may promote pigmentation not only by direct action on the substrate but also indirectly by oxidising sulphhydryl groups.—L. G. DONALD.

MONTAGNA, M. (1949.) **The glands in the external auditory meatus of the cat.**—*J. Morphol.* **85**, 423–442. [Author's summary copied *verbatim*.] **2694**

The lipids in the cerumen in the external auditory meatus of the cat, are secreted by the sebaceous glands, and the proteins and pigment are secreted by the apocrine sudoriparous glands.

The sebaceous glands contain triglycerides, cholesterol esters, some plasmal—and some phospho-lipids. Alkaline phosphatase activity is conspicuous in the peripheral acinar cells. Some lipase activity is encountered in the sebum and in the degenerating sebaceous cells.

The cells of the apocrine sudoriparous glands possess in their apices lipid granules which are stainable only with Sudan black and acid hematein; they also contain abundant argyrophilic protein substances, and variable abundance of yellow pigment granules. The bases of the cells reveal alkaline phosphatase and ribonucleoproteins. The pigment is only slightly sudanophilic, is not dissolved by lipid solvents, is not bleached by reducing agents, stains blue-green with toluidin blue and methylene blue, contains no iron, and fluoresces with an orange-yellow light. In the residual cerumen, pigment is extractable with water. Dried water-extracted pigment is brown and fluoresces with a reddish-orange light; in water solution it fluoresces with a green light.

The sebaceous glands possess spherical osmiophilic bodies which seem to participate in the synthesis of stored lipid droplets. These elements appear to represent the Golgi bodies.

The Golgi element in the apocrine glands appears as a network in material prepared with the method of Da Fano and as spherical osmiophilic bodies in material treated with osmic acid.

BRODY, S., WORSTELL, D. M., RAGSDALE, A. C. & KIBLER, H. H. (1948.) **Growth and development, with special reference to domestic animals. LXV. Heat production and cardio-respiratory activities during gestation and lactation in Holstein cattle.**—*Res. Bull. Miss. agric. Exp. Sta.* No. 424, pp. 3–15. **2695**

The findings here reported relating to Holstein cattle are essentially the same as those already reported for Jersey cattle [*V.B.* **20**, 481]. The heat production per unit surface area rises during gestation and at the lactation peak is double that of the non-pregnant, non-lactating animal. The heat increment increases with size and the ventilation and pulse rates closely follow the total heat production.

—J. A. NICHOLSON.

DORDICK, I. L. (1949.) **The effect of high temperature and humidity upon cattle.**—*Acta Tropica [Basle]* **6**, 221–245. [English, French and German summaries.] [Abst. in *Biol. Abstr. Sect. F* **24**, No. 4, p. 17. (1950), copied *verbatim*.] **2696**

The adverse action of high air humidity and air temperature on body temperature, respiration and pulse rates has been established so far as productivity of European cattle is concerned. Conflicting data regarding the effect of temperature on fertility are reviewed. Scientific breeding of native Zebu and Afrikaner cattle may yield superior strains which would be as productive as European cattle. More precise investigations of temperature, humidity and other climatic effects upon the physiology, and especially the endocrine organs, of cattle would facilitate improvement of native breeds and acclimatization of European cattle to the tropics.

WIERTZ, G. (1949.) **De betekenis van de zweetklieren voor de warmteresistentie van runderen. [The value of sweat glands for heat resistance of cattle.]**—*Landbouwk. Tijdsch.* **61**, 39 & 45. **2697**

Literature on the role of sweat glands in heat resistance and heat regulation of cattle was discussed. Heat regulation is a very complex mechanism depending on density of sweat glands, thickness of the skin, density of the coat, pigmentation and functioning of the hair erector muscles. The extent to which each of these factors influences heat resistance is not sufficiently known to be of use in the breeding of heat-resistant cattle.

So far no norm has been established for the number of sweat glands per unit of skin surface in relation to heat resistance.—E. G.

I. RIEK, R. F. & LEE, D. H. K. (1948.) **Reactions to hot atmospheres of Jersey cows in milk.**—*J. Dairy Res.* **15**, 219–226. **2698**

II. RIEK, R. F. & LEE, D. H. K. (1948.) **Reactions of Jersey calves to hot atmospheres.** *Ibid.* 227–232. **2699**

I. Four Jersey cows were exposed for seven hours twice weekly to atmospheres with dry bulb temperatures ranging from 85° to 110° F. and absolute humidities ranging from 6 to 16 grains per cu. ft. Rectal temperatures, pulse and respiratory rates, respiratory volume, evaporative loss, calcium, phosphate and erythrocyte composition of the blood, milk volume and butterfat content, and behaviour of the cows were recorded.

Rectal temperatures and respiratory rates were raised, an increment of 0.4 gr. per cu. ft. in

humidity having approximately the same effect as a rise of 1° F. Tidal volume was reduced. Pulse rate was unaffected by a rise in temperature, but rose slightly with humidity. Evaporative loss was increased to an extent greater than could be accounted for by increased pulmonary ventilation; sweating was believed to aid in this loss. Milk and butterfat were not affected. Blood calcium and phosphate levels fell, but the erythrocyte count was unchanged.

II. Four Jersey calves were exposed to temperature and humidity conditions similar to those employed for investigating the behaviour of cows. The authors concluded that calves undergo a greater strain than cows in response to a given heat stress.—G. B. S. HEATH.

STURKIE, P. D. (1946.) **Tolerance of adult chickens to hypothermia.**—*Amer. J. Physiol.* 147. 531–536. 2700

Eight adult hens were placed in water at temperatures ranging from 6° to 11.7° C. Their lethal body temperatures varied from 22.8° to 23.9° C., death occurring after 50–90 min. immersion. Times of survival were directly proportional to temperature of the water.

Five other hens, exposed to water temperatures ranging from 20° to 27.8° C. died within 35–40 hours. Lethal body temperatures ranged from 27.8° to 29.4° C.—E. G.

JACOBSON, K. P. (1947–48–49.) Sur une thiaminase végétale. [A plant thiaminase.]—*Arch. portugaises Sci. biol.* 9. Suppl. 112–114. 124–125: & 10. Suppl. 6–7, 52–54. [Abst. from abst. in *Nutr. Abstr. Rev.* 20. 318, Signed: E. M. HUME.] 2701

Vitamin B₁ was estimated by the thiochrome method. Thiaminase was prepared from the viscera of the goldfish, *Carassius carassius*, and also from a crustacean, *Penaeus carapace*, and a species of *Tellina*.

The activity of the thiaminase preparation was not counteracted by a sulphonamide drug (Lisococyl) or penicillin, and only very slightly by streptomycin.

The thiaminase preparation from the crustacean was active only when prepared in January.

Extracts of *Pteris*, the bracken fern, had no thiaminase activity but suspensions of the finely minced fronds especially those without sporangia destroyed vitamin B₁, estimated by the thiochrome method, completely in 24 hr. in a solution containing 40 µg. of the vitamin per ml., incubated at 37° C. and pH 6.5. The activity was lost by heating the preparation for 5 min. at 100° C.

BACQ, Z. M. (1949.) **The metabolism of adrenaline.**—*Pharmacol. Rev.* 1. 1–26. [Author's summary modified.] 2702

Adrenaline may be excreted unchanged in small amounts by the kidneys and stored in the tissues and red blood cells; its deamination by amine-oxidase in the body is unlikely; an important fraction is sulfo-conjugated; another important fraction is simultaneously oxidized to indole substance; adrenochrome and its derivatives have important biochemical and physiological properties, entirely different from those of adrenaline, and deserve further study.

GAUNT, R., BIRNIE, J. H. & EVERSOLE, W.-J. (1949.) **Adrenal cortex and water metabolism.**—*Physiol. Rev.* 29. 281–310. 2703

This is a review of the literature on the influence of ADH [posterior pituitary antidiuretic hormone], DCA [desoxycorticosterone acetate] and ACTH [adrenocorticotrophic hormone of the anterior pituitary] on the water metabolism in the body. There are over 280 references.

—E. G.

CHIU, C. Y. & NEEDHAM, D. M. (1949.) **Effect of adrenal cortical steroids upon the formation of carbohydrate by rat liver slices.** [Correspondence.]—*Nature, Lond.* 164. 790–791. 2704

Rat liver slices were treated with desoxycorticosterone (as acetate and succinate), 11-dehydrocorticosterone and 17-hydroxy-11-dehydrocorticosterone and were incubated. In the presence of suitable substrates—pyruvate, lactate, glutamate, etc.—an increase of glycogen over controls was observed, while in the absence of substrates a decrease in the breakdown of glycogen resulted. When total carbohydrate was estimated, the increase in the liver slices in the presence of the steroids was even more marked.—R. MARSHALL.

SWENSON, M. J. (1949.) **The effect of a thiamin analogue on growth and on the thiamin content of rat tissues.**—*Amer. J. vet. Res.* 10. 77–84. 2705

Weanling rats in groups of four, fed a high carbohydrate, thiamine-free diet, gained in weight when thiamine supplements, 5 µg. daily, were given. These gains were partly inhibited by the further addition of 1 mg. of *o*-aminobenzyl analogue of thiamine daily. Thiamine levels of tissues in vitamin and analogue-fed rats, were slightly lower than when vitamin alone was fed.

—P. H. HERBERT.

DIAZ, S. E. (1947.) **Physiological studies on Philippine horses: I. Normal hemoglobin content, temperature, respiration rate and pulse**

rate in the mare.—*Philipp. Agric.* 31. 126–132. 2706

The response of six healthy adult Philippine mares to environmental temperatures and humidity was studied for a period of one year. Body temperatures varied slightly from month to month and were not directly affected by external factors, but were influenced by the combined action of respiration and pulse rates and the haemoglobin index. The respiration rate depended on body temperature and pulse rate but not on the haemoglobin index. Decreased respiration, however, caused a rise in the haemoglobin index. Pulse rate was not influenced by external factors.—E. G.

MATSUMOTO, K. (1943.) [The inherited factor for erythrocyte type in the horse.]—*Jap. J. Genet.* 19. 118–120. [In Japanese.] [Abst. in *Anim. Breed. Abstr.* 16. 207. (1948), slightly modified.] 2707

There are 4 blood groups in the horse, A, AB, AC, and ABC. The expected frequency distribution of the different blood groups according to the Willisch formula is in full agreement with the observed frequency distribution. Therefore, the inheritance of blood groups in the horse, as in man, can be explained on the basis of the participation of 3 genes which are multiple alleles.

ALEXANDER, F. (1946.) The rate of passage of food residues through the digestive tract of the horse.—*J. comp. Path.* 56. 266–268. 2708

Using 150 g. of granular charcoal as an indicator, the rate of passage of food through the digestive tract of five horses was studied. The results of 17 observations gave the average time for the first appearance of the carbon in the faeces as 22.6 ± 1.32 hours after feeding, its excretion continuing up to 47.4 ± 2.26 hours.

—J. A. NICHOLSON.

STORMONT, C. (1949.) Acquisition of the J substance by the bovine erythrocyte.—*Proc. nat. Acad. Sci.* 35. 232–237. 2709

Although monozygous twins in cattle are rare, identical blood group combinations in bovine twins are common. S. supposes that at an early stage haemopoietic tissue may become so distributed between the twins that red cells genetically derived from each animal will be present in both. That the blood of each animal contains a mixture of blood groups may be demonstrated by examining the samples with antisera and complement (fresh rabbit serum) and examining for haemolysis. It is shown that complete haemolysis occurs with antisera against

some of the blood group factors, but that only partial haemolysis occurs with others. In the latter, only those cells containing the specific factor are lysed, and the others, which do not contain the factor and do not lyse, are red cells derived ultimately from the other twin.

The J factor, however, does not behave in this way, and may be shown to segregate absolutely between twins. It is detectable only by means of naturally occurring antisera, since the production of immune sera against J has hitherto been unsuccessful. It is not detectable at birth. A soluble substance of the same specificity as J is to be found in the plasma of J-positive individuals. To test the hypothesis that the J substance might be acquired by the red cells of any individual by contact with the soluble form-cells of J-negative donors were transfused into J-positive recipients. The cells of donor and recipient could be identified by other blood group factors. The J-negative cells became J-positive within two days. A similar test *in vitro*, in which J-negative cells were suspended in the plasma of J-positive individuals at 37° C., caused the negative cells to acquire the J factor within 24 hours.—G. FULTON ROBERTS.

HONISCH, K. (1947.) Der Einfluss intravenöser Ca-Gaben auf das Volumen der roten Blutkörperchen. [Influence of intravenously injected calcium upon the volume of erythrocytes.]—*Inaug. Diss., Vienna.* [Abst. from abst. in *Wien. tierärztl. Mschr.* 35. 508. (1948.)] 2710

In a man, two minutes after intravenous injection of 10 ml. of a 10% calcium gluconate solution, the volume of erythrocytes in the blood as measured by the haematocrit, decreased from 47.0% to 38.5%. Three minutes later the volume returned to the previous level.

In a dog two minutes after injection of 10 ml. of a 20% calcium chloride solution the volume decreased from 50.1% to 39.4%. Twenty minutes after the injection the volume was still not back to normal.—E. G.

KUBIN, R. & MASON, M. M. (1948.) Normal blood and urine values for mink.—*Cornell Vet.* 38. 79–85. 2711

Blood and urine analyses were made on 16 normal mink. In order to obtain the blood samples, the animals were anaesthetized with pentobarbital sodium at the rate of 1 gr. per 4 lb. body weight. The anaesthetic was found to have a wide safety margin and produced complete surgical anaesthesia within 20 min., lasting from 3–4 hours.

The fasting blood sugar level varied between 107 mg. and 147 mg. per 100 ml. blood and the

non-protein nitrogen between 375 and 525 mg. %; haemoglobin values ranged between 13.6 g. and 17.5 g. %, erythrocytes between about 6 and 9 million and leucocytes between 3,250 and 11,150. The daily excretion of urine varied in proportion to the body weight from 35 ml. to 60 ml.; sp.gr. 1.018–1.036; pH 6.8–7.5. No trace of sugar or bile was observed and the calcium content was low. Casts, white corpuscles, red corpuscles and transitional epithelium were frequently found in the sediment but in small numbers.

—J. A. NICHOLSON.

KMENT, A. (1949.) Thrombokinasestudien. [Studies on thrombokinase.]—*Wien. tierärztl. Mschr.* 36. 235–242. 2712

In tests to determine the effect of brain and lung thrombokinasases on coagulation of plasma from calves and seven other animal species, species specificity was found to exist and in the case of the calf individual specificity was also demonstrated.

The activity of thrombokinase was considerably reduced after irradiation with ultra-violet light having a wavelength of 2,535 Å.

—G. P. MARSHALL.

MUHRER, M. E. & GENTRY, R. F. (1948.) A hemorrhagic factor in moldy lespedeza hay [*Lespedeza stipulacea*].—*Res. Bull. Mo. agric. Exp. Sta.* No. 429, pp. 11. [Abst. from authors' abst.] 2713

Haemorrhage in Missouri livestock has been reported in circumstances suggestive of sweet clover disease even though the diets did not contain sweet clover. Losses from haemorrhage following dehorning of cattle receiving a ration of "mill feed", "sorgo" silage, and mouldy lespedeza hay were investigated. The affected animals were found to have a long prothrombin time, but the condition could not be traced to a genetic origin. The mouldy lespedeza hay was the only ingredient of the diet that would produce a similar condition when fed to rabbits. Although the rabbits lost considerable weight on the mouldy hay diet the haemorrhagic condition and low prothrombin time were not due to starvation because in rabbits receiving a reduced amount of good alfalfa hay both the blood clotting time and prothrombin content were normal. The rabbits refused to eat sufficient mouldy hay to produce a severe bleeding condition unless it was mixed with "cerelose" (corn sugar). A bleeding condition severe enough to cause death from a minor injury was produced in some of the rabbits after long periods on the sweetened mouldy lespedeza hay. However,

lespedeza hay that was properly cured did not produce the haemorrhagic condition.

THOMAS, J. W. (1949.) Factors affecting heart rates of dairy cows.—*J. Dairy Sci.* 32. 708–709. [Only abst. given. Abst. from abst.] 2714

The heart rate of lactating cows was found to be increased on feeding total digestive nutrients above requirement and also when thyroprotein was fed. An increased rate was also observed immediately after drying off, just before calving and during oestrus.—J. A. NICHOLSON.

BORGATTI, G. (1947.) Contributi alla fisiologia dei prestomaci. [Physiology of the fore-stomachs of ruminants.]—*Nuova Vet.* 23. 187–197. 2715

B. studied the physiology of the fore-stomachs in sheep of various ages. Under chloralose anaesthesia kymographic needles were applied to the exposed fore-stomachs and mechanical stimuli were applied to the reflexogenic zones of the oral mucosa; the reflexes of the hard palate and lingual surface of the gums were more marked than those of the buccal surface of the gums and the dental plate. He observed that with increasing age these zones were displaced towards the rear of the oral cavity. Electrical stimulation of these zones produced similar effects in the fore-stomachs.

B. observed also that the functioning of the reflex was not materially affected by increasing age. Co-ordination between reticulum and omasum is effected by the juxta cardiac plexus of the right vagus. B. states that relaxation of the vestibulum of the omasum is under nervous control.—G. P. MARSHALL.

BURRI, K. (1948.) Zum Brunstzyklus der Freibergerstute. Beobachtungen aus drei Deckperioden. [The oestrous cycle in the mare.]—*Schweiz. Arch. Tierheilk.* 90. 323–331; & 381–401. 2716

B. described observations over a period of three years on the sex physiology of indigenous brood mares on a Swiss stud farm.—E. G.

PEETERS, G.; MASSART, L. & COUSSENS, R. (1947.) Influence of calcium on isolated mammary gland.—*Arch. int. Pharmacodyn.* 74. 151–154. 2717

An isolated udder of a cow was cut in half; one half was perfused with heparinized blood, the other half with citrated blood. The anticoagulating action of the citrate is based on the elimination of Ca ions, so that citrated blood may be considered as a liquid poor in Ca ions, while heparinized blood is normal from this point of view. Vasopressin, pituitrin or prolactin were inactive or only slightly active in the

half containing the citrated blood, but had a normal activity in the other half.—E. M. J.

COWIE, A. T. (1949.) **The relative growth of the mammary gland in normal, gonadectomized and adrenalectomized rats.**—*J. Endocrinol.* **6**. 145–157. 2718

An account of the growth of the mammary gland in normal rats and in rats after gonadectomy and adrenalectomy.—B. A. CROSS.

KUMARAN, J. D. S. & TURNER, C. W. (1949.) **The endocrinology of spermatogenesis in birds. I. Effect of estrogen and androgen.**—*Poult. Sci.* **28**. 593–602. 2719

The authors studied the effects of the synthetic oestrogen dianisylhexene (the dimethyl ether of diethyl stilboestrol) and of androgen contained in heated cow manure on the testes of White Plymouth Rock cockerels, the hormones being mixed with the food.

In groups of birds killed from 8–16 weeks of age testis growth was greatly, but not completely inhibited by administration of dianisylhexene at the rate of 4 g. per 100 lb. feed. Comb growth was also retarded and histological examination of the testes revealed that spermatogenesis had not progressed beyond the spermatogonial stage.

When 10% cow manure was added to the dianisylhexene-fed cockerel's ration spermatogenesis was not maintained or stimulated.

In another group of cockerels 12 weeks old fed 4 g. of dianisylhexene per 100 lb. feed for four weeks there was regression of spermatogenesis to the primary spermatocyte stage and the feeding of 10% cow manure was unable to prevent this regression.

A further test was made to compare the rate of recovery of spermatogenesis after withdrawal of dianisylhexene from the ration and on feeding 10% cow manure spermatogenesis was depressed.

In another trial the feeding of dianisylhexene at the rate of 2 g. per 100 lb. feed with large amounts of testosterone to cockerels 11 weeks old was not effective in stimulating testis growth or spermatogenesis.

Finally 800 mg. testosterone and 4 g. dianisylhexene per 100 lb. feed were given. The average testes weight in this group was less than that in the group fed dianisylhexene alone. Better results were observed when thyroprotein or sulphamethazine was combined with the oestrogen.—B. A. CROSS.

JULIAN, L. M. & DEOME, K. B. (1949.) **Studies on the subgross anatomy of the bovine liver. I. The distribution of the blood vessels and bile**

ducts as revealed by the vinylite-corrosion technique.—*Amer. J. vet. Res.* **10**. 331–335. 2720

The technique of preparing vinylite-corrosion casts is described. Anastomoses between fine branches from different parts of the portal vein seen in the resulting models are named "portal circuits". The presence of vast plexuses of small arteries from branches of the hepatic artery are noted surrounding the bile ducts. The functions of these two structures, and the potentialities of the technique are discussed.

—R. N. SMITH.

BERGE, S. (1948.) **Genetical researches on the number of vertebrae in the pig.**—*J. Anim. Sci.* **7**. 233–238. 2721

In breeding experiments utilizing Large White and Norwegian Landrace pigs and their crosses B. found that heredity is the important factor determining the number of presacral vertebrae, and indirectly the length of the side of bacon. Inheritance is additive and there is no clear dominance. The number of factors involved is not known. Variation is greatest in the number of thoracic vertebrae, and rudimentary ribs, when present, have about the same value genetically as fully developed ribs. No difference attributable to sex was found, but variation both within and between litters was greater in the Landrace than the Large White breed.

—J. T. DONE.

BODINGBAUER, J. (1949.) **Kurzgefasster Grundriss einer Zahnlehre für Kynologen. [Outline of canine odontology.]**—*Unsere Hunde.* **3**. No. 26. 3–8. 2722

A general account of the eruption, structure and embryological development of the teeth in the dog.—HUGH PLATT.

KONORSKI, J. [Head of the Department of Neurophysiology in the Nencki Institute of Experimental Biology.] [Translated by GARRY, S. (1948.) **Conditioned reflexes and neuron organization.** pp. xiv+267. London: Cambridge University Press. 18s. 2723

In the preparation of this monograph the author set himself the task of bringing together the concepts of cerebral function resulting from the experimental studies made by the Pavlov and Sherrington schools of neurophysiologists. Professor Konorski worked with, or was associated with Pavlov for many years during the latter's study of "conditioned reflex" in the dog and therefore has an intimate knowledge of the methods used, the results obtained and the validity of the theories evolved.

He gives an account of the methods, results and theories developed by the Pavlov group of workers over the last thirty years and follows this with a reasoned criticism of the Pavlov interpretation, drawing his material from the experimental findings of various Russian and Polish investigators. The knowledge of the function of the central nervous system developed in the last forty years as a result of the impetus derived from Sherrington's work is reviewed with special reference to an interpretation of the physiology of the cerebral cortex and conditioned reflexes. The two concepts are then brought together and an attempt is made to show that the conditioned responses are explicable by an application of strict physiological principles rather than psychical principles. As an aid to the integration of the two theories the author supplies a table linking the very different nomenclature of the two schools and, where necessary, linking them to the mechanisms or phenomena according to his own synthesis.

—F. R. BELL.

BONVALLET, M., DELL, P. & STUTINSKY, F. (1949.) *Lésions hypothalamiques et comportement émotionnel chez le chien. [Effect of lesions of the hypothalamus on the behaviour of dogs.]—C. R. Soc. Biol. Paris. 143. 80-83.* 2724

After incisions into the hypothalamic region, five dogs in addition to polyuria developed certain changes in character and eight dogs developed diabetes insipidus. The dogs were anaesthetized and the operation was carried out with a cataract lancet directly behind the optic chiasm and through the sphenoid bone. When in their cages the dogs behaved normally and did not react to the presence of other dogs in adjoining cages. In the presence of man the essential characteristic of their behaviour was fear coupled with wild aggressiveness. When left alone they calmed down fairly rapidly. This excitability was permanent.—E. G.

CAMPBELL, D. J., ANDREWS, F. N. & CHRISTIAN, J. E. (1950.) *A study of the absorption characteristics of iodine-131 labeled iodinated casein in some mammals. Endocrinology. 47. 242-250. [Authors' summary and conclusions modified.]* 2725

When iodocasein labeled with iodine-131 was injected into the jugular vein of sheep, only about 10 per cent of the radio-activity present immediately after injection could be detected in the blood 7 hours later.

Iodocasein or some metabolite of it was absorbed from the alimentary tract of sheep

following oral administration. There was greater absorption following oral ingestion than when the material was administered through fistulas into the ventral sac of the rumen or through the small intestine; there was practically no absorption from the cecum following direct administration into that organ. As determined from radioactive assay, high levels of blood activity were maintained for at least 48 hours, regardless of the site of administration in the gastro-intestinal tract.

A distribution study of the thyroxine, diiodotyrosine-inorganic iodine fractions of sheep plasma, showed that following oral ingestion of labeled iodocasein, 10 per cent of the radio-activity present in the plasma was found in the thyroxine fraction and 39 per cent in the diiodotyrosine-inorganic iodine fraction. Fifty per cent of the material appearing in the plasma was not extractable with butyl alcohol, indicating that iodine-131 was present in some form other than the three fractions studied. The presence of thyroxine was positively established employing the carrier technique. Similar results were obtained with rats.

When labeled iodocasein was fed to lactating ewes, a radioactive assay of the skim milk showed a considerable degree of activity. These compounds may be the substances adversely affecting the growth of lambs sucked by iodocasein-treated ewes.

A distribution study of the skimmed milk of ewes, similar to that carried out on the plasma, showed that 80 per cent of the iodine compounds present were extractable with butyl alcohol 30 per cent being found in the thyroxine fraction and 50 per cent in the diiodotyrosine-inorganic iodine fraction.

BERNARD, C. [Translated by: GREENE, H. C.] (1949.) *An introduction to the study of experimental medicine.* pp. xix+226. New York: Henry Schuman, Inc. \$3.00. 2726

This is a reprint of a translation of Claude Bernard's classic which was first published in 1865.

That the book is still read indicates its outstanding importance not so much as a treatise on physiology but as a study of scientific methods and of the approach to a problem in science.

—M. C.

RASCHKE, O. (1949.) *Wissenswertes für Tierbesitzer. [Outline of physiology and anatomy for owners of livestock.]* pp. 63. Kirchhain N.-L. Brücke-Verlag Kurt Schmiersow. DM. 2. 2727

This booklet is written for farmers and other interested laymen. It describes anatomy and basic functions of the animal body in 75 brief sections. The style is popular and scientific terms have been avoided.—E. G.

TRACEY, M. V. (1948.) **Human biochemical genetics.**—*Brit. med. Bull.* 5. 325–329. 2728

This subject is hampered by ignorance about certain constituents of the cell, particularly of the fine structure of proteins (*i.e.*, the order of different amino acids that make proteins) and nucleic acids (the order and arrangement in space of the components of nucleic acids). T. discussed the difficulties and advantages of man as a subject for the study of chemical genetics.—W. R. BETT.

HVIDSTEN, H. (1948.) **Kullhydratgjæringa i drøvtyggermagen. [Fermentation of carbohydrates in the digestive tract of ruminants.]**—*Tidsskr. norske Landbr.* 55. 87–108. 2729

A detailed review of published work on the subject up to 1946. H. compared the findings of the Cambridge school of workers with those of the Baker school and considers that it is impossible to say with certainty which of the two concepts is nearer to the truth, which may possibly be a combination of them both.

—F. E. W.

I. LUCK, J. M., LORING, H. S. & MACKINNEY, G. [Edited by.] (1949.) **Annual review of biochemistry.** Vol. XVIII. pp. vi + 739. Stanford, California: Annual Reviews, Inc. \$6.00 2730

II. LUCK, J. M., LORING, H. S. & MACKINNEY, G. [Edited by.] (1950.) **Annual review of biochemistry.** Vol. XIX. pp. xi + 596. Stanford, California: Annual Reviews Inc. London: H. K. Lewis & Co. Ltd. \$6.00. 2731

I. The well deserved and universal popularity of Annual Reviews of Biochemistry has necessitated a further breaking down of the subject matter, in order to keep the work at a reasonable size and price. Some years previously Annual Reviews of Physiology were inaugurated in order to transfer from the present Reviews those topics concerned purely with animal biochemistry, and it has now become necessary to set up Annual Reviews of Plant Physiology to absorb those aspects of biochemistry which deal specifically with papers on plant nutrition, soil conditions in relation to plant growth and so on.

It has therefore been decided to retain in the present series of Review those papers which deal with all investigations of a fundamental character in biochemistry, whether the subject is plants, animals or micro-organisms. Specific topics

peculiar to each of the various forms of life will be covered in appropriate Annual Reviews other than those of Biochemistry. There will be, inevitably, some overlap in the papers reviewed as a result of this policy, but all investigations of a fundamental character will continue to be covered in the present reviews. In consequence, this Volume (No. XVIII) is the last which will attempt to deal with such specific topics as Nitrogenous Constituents of Plants, Mineral Nutrition of Plants, and Organic Acids of Plants. The pattern of Annual Reviews of Biochemistry will thus tend to be more closely defined, although from time to time new developments must necessarily find a place in them.

All contributors to the present volume are well-known authorities, and the usual high standard of editing has ensured the maintenance of the quality and value now expected of Annual Reviews.

II. This volume (No. XIX) is the first produced implementing the changed policies outlined above in transferring topics of purely plant biochemistry to a separate (and new) Annual Review, but such is the complexity of biochemistry, the entire fabric of which is woven from all parts of the living world that the Editorial Committees of both Reviews (Biochemistry and Plant Physiology) have considered alternating between the two reviews such borderline topics as Photosynthesis and Plant and Animal Pigments.

The main subjects covered in this volume closely conform with the usual pattern of arrangement in these Annual Reviews. One interesting new feature reviewed is that of Partition Chromatography, surveying a field of 277 original papers.

This volume is appreciably smaller than its predecessor, but this is to be expected in view of the transfer of reviews of specifically plant biochemical topics elsewhere. Nevertheless, the usefulness of these Reviews for all interested in biochemical matters remains unchanged.

—A. EDEN.

CASSIDY, H. G., *et al.* (1948.) **Chromatography.**—*Ann. N.Y. Acad. Sci.* 49. 141–326. [Abst. from concluding remarks.] 2732

A record is presented of the Conference on Chromatography held by the New York Academy of Sciences and additional papers are included by (a) Deitz, V.R. on data characterizing solid adsorbents of possible use in chromatography; by (b) Applezweig, N. on ion exchange; and by (c) Shedlovsky, L. on separations using foams and emulsions.

Chromatography, which was first devised as a tool applied empirically, has in the last decade or so become better understood. The development was described by Zechmeister in his first paper. We are in the process, now, of further understanding and sharpening not only the classical Tswett chromatography but also the elegant simplifications introduced by Tiselius and Claesson, and the ingenious and elegant "partition chromatography" of Martin and Synge.

It is probably correct to say that, while it may look as though some ultimate point has been reached in the refinement and subtlety of chromatography as these have been revealed in the foregoing papers, yet experience allows us to prophesy that there will be no end to progress.

One area of investigation in which there is evident need for continued research and inspiration is that which connects adsorbability with

chemical or physical properties of molecules. It was implied, in the discussions, that we should expect no simple relationship to be found here, but in the work of Tiselius and his group, in the face of the complexities of chromatographic theory so well delineated by Thomas, simplifications were wrought which have brought the theory under practical control. An example of such simplification is the use of the displacement developer, which with one stroke can control the behaviour of the rest of the adsorbates in the column. Perhaps, with this precedent, we can look for further simplifications, whether in technique or theory or in relations which connect structure and properties of molecules with their behaviour in the column.

The need for standardized adsorbents, which was stressed especially by Zechmeister, has already been mentioned.

See also abst. 2798 (book, anatomy).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

(1949.) **Great Britain: Report of the committee on milk services, Scotland.** pp. 36. Edinburgh: H.M. Stat. Off. 6d. 2733

This committee was appointed in July 1946 to review the services in operation in Scotland in connexion with the production of milk and the quality of the supply, and to consider what improvements were desirable and practicable. Their main conclusions and recommendations were the following:

Supervision of milk production should not be a function of the Local Public Health Authorities, of which there are no less than 55 in Scotland, but should belong to the Department of Agriculture for Scotland. Public Health Authorities should retain their powers and duties in relation to milk-borne diseases. The Department of Agriculture should maintain in each area a staff of Milk Production Officers. Animals owned by exempted producers should be subject to regular veterinary inspection by the Animal Health Division of the Ministry of Agriculture. Public Health Authorities should retain their powers and duties from the stage at which milk is delivered to the first buyer, but the Department of Health for Scotland should have overriding powers to enforce Byelaws or Regulations where necessary. Routine milk testing should be applied comprehensively under the supervision of the Department of Health. Designated types of milk should eventually be reduced to not more than three, "certified", "tuberculin-tested", and "pasteurized". Areas largely free from bovine TB. should be scheduled, and cleared of

reactors after two years. Vaccination of young females in dairy herds against contagious abortion should be further encouraged—on a voluntary basis. Milk-cooling equipment at dairy farms and can-washing plants at depots should be provided, and milk cans and bottles should be of a standard approved type. Insulated tank vehicles should be used for bulk transport of milk over long distances.

Labour should be attracted to dairying by providing better housing, relief system of working, and training facilities. Housing, water, and electricity needs of dairy farms require priority consideration.—W. R. BETT.

ANON. (1948.) **Standard methods for the examination of dairy products. Microbiological, bioassay and chemical.** pp. xxi + 373. New York; American Public Health Association. 9th Edit. 2734

This is the third printing of the ninth edition of this authoritative compilation.

Information is given on the testing of a very wide range of dairy products including eggs and egg products. The methods used are microscopic, bacteriological and biochemical. The detection of pathogenic organisms is the subject of a chapter of 23 pages and deals with coliform, tubercle and brucella organisms and streptococci.—M. C.

POPPMEIER, A. (1948.) **Geschichte der Schlacht- tier- und Fleischbeschau in Graz und in**

Steiermark. [History of cattle and meat inspection in Graz and Styria.] pp. 103. Graz: Steiermärkische Landesdruckerei. S. 18. 2735

A history of the development of regular meat inspection in Upper Austria from the middle ages to the present day. Whole passages in mediaeval German are quoted. Readers interested in the history of meat inspection in Central Europe will find this little book of interest.—E. G.

MÜLLER, H. (1947.) Die Pflichtuntersuchungen der Rinder im Lande Sachsen. [Compulsory cattle examination in Saxony.]—*Berl. Münch. tierärztl. Wschr.* No. 5. pp. 49–54. 2736

The pre-war land reform in Saxony which provided for the division of large estates into small farms has resulted in an increased demand for cattle. Therefore a new law in line with the German law concerning the supervision of dairy herds from the year 1930 was later introduced by the Russian administration. All cattle over three months old must be inspected four times a year. Every veterinarian in Saxony has to examine 1,000–1,500 animals per year, the examination includes diagnosis of pregnancy, or for causes of existing sterility, contagious diseases with particular emphasis on TB., vitamin or mineral deficiencies and the general state of health.—R. ROSS-RAHTE.

BLANCHARD, L., PANTALÉON, J. & POISSON, J. (1949.) Le test de coction: épreuve rapide d'estimation, sur la viande, des bovine adultes, de l'infiltration séreuse musculaire des animaux maigres et de l'état dénommé "fièvre de fatigue" ou "surmenage". [The waterbath-heating test—a rapid means of testing the quality of beef from cattle in poor condition and affected with "fatigue fever".]—*Rev. Méd. vét., Lyon et Toulouse.* 100. 248–251. 2737

The authors described an evaluation of meat by a simple "cooking" test. Slices of meat about 0.5 cm. thick and weighing about 10 g. are placed in test tubes, capped, and immediately placed in boiling water for at least 10 min. (a longer period does not alter the results). The extruded liquid is decanted into burettes, graduated in 0.1 ml., and cooled, when a coagulum of 0.1–0.2 ml. forms at the bottom. The supernatant fluid is measured. Normal meat yields 3.2–3.6 ml. fluid (42.73–47.91%). Badly nourished meat yields more than 3.6 ml. and may even yield 5 ml. (49.35–63.74%). Meat from fatigued animals yields less than 3 ml. It is important that the sample should remain in slices, as, if minced, much of the liquid is lost.—R. MACGREGOR.

CORDES, R. (1949.) Zur Kenntnis der Sterilisation von mit Paratyphus-Enteritiskakterien durchsetzten Fleisch- und Organteilen durch Kochung. [Sterilization of Salmonella infected meat by boiling.]—*Dtsch. tierärztl. Wschr.* 56. 245–249. 2738

An account of tests made on the viability of certain salmonella organisms to heat when exposed in liquid and semi-liquid medium, in artificially infected meat and in meat tinned and heated. It is stated that pieces of meat, of unstated dimensions, weighing 1,000 g. were sterile after exposure to water at 100° C. for 60 min.

—A. MAYR-HARTING.

GLÄSSER, K. & REUTER, H. (1948.) Ein bemerkenswerter Fall einer Fleischvergiftung. [A case of food poisoning by meat.]—*Berl. Münch. tierärztl. Wschr.* No. 8. pp. 85–87. 2739

The uncooked minced flesh of a horse which had apparently had no abnormality except lameness (tendinitis) caused illness in a number of people who had eaten the meat raw. *Salmonella typhi-murium* were the organisms responsible.—R. MARSHALL.

SERGEANT, ED. & SERGEANT, ET. (1949.) Nouveau procédé de dératisation basé sur l'emploi du D.D.T. [D.D.T. as a rodenticide.]—*Arch. Inst. Pasteur Algér.* 27. 18–34. 2740

The accidental observation that a powder containing 50% D.D.T., and intended to kill cockroaches, also destroyed mice, led the authors to test its value as a rodenticide on 366 mice, 100 sewer rats and five gerbils, *Meriones shawii shawii* [sic.]

Neither age nor sex affected the result in any of these tests; the weak odour emanating from the products had no repellent effect.

While in the majority of the mice and sewer rats, and in all the gerbils, there was great sensitivity to D.D.T., natural resistance in the refractory ones could be overcome by repeated applications in all but a very small percentage of sewer rats.

The authors recommend that for mice 5% D.D.T. should be dropped on appropriate runs used by the mice; for rats, 50% placed appropriately.—G. P. MARSHALL.

RAINEY, J. W. (1949.) The Tasmanian veterinary scheme.—*Brit. vet. J.* 105. 421–430. 2741

A general account, together with a commentary, of the Scheme for the Nationalization of Veterinary Services in Tasmania, which began in 1941.

The scheme provided a cheap veterinary service, to the extent to which veterinarians were available and the creation of the service led to

great demands upon it. The veterinarians were, however, not satisfied with the emoluments and a large proportion withdrew from the service. R. considered that a suitable scheme could be worked out, but that considerable difficulties would require to be overcome.—R. MACGREGOR.

ANON. (1949.) **New Belgian Institute for Scientific Research in Central Africa.**—*Nature, Lond.* 163. 543. 2742

The Institut pour la Recherche Scientifique en Afrique Centrale, Belgian Congo, was created in 1947, at Leopoldville; it was sponsored by the Government and had an initial endowment of £1,129,000 and an annual subsidy of £141,240.

The function of the Institute is the fundamental study of human, zoological and botanical environment in the tropics. A centre for hydrobiological research was to be opened at Uvira in 1949; other centres devoted to the study of anthropology and subjects covering a wide field, were to be erected.

The Institute will provide fellowships and subsidies to scientific workers established in the Congo, and form an information centre to assist visiting scientists.—J. H. ROSE.

TODD, F. A. (1948.) **Veterinary laboratories in the U.S. Zone of Germany.**—*J. Amer. vet. med. Ass.* 113. 540-544. 2743

The veterinary laboratories are an important part of the German veterinary service.

Before the second world war there were in Germany 11 national institutes with veterinary

See also absts. 2488 (tubercle bacilli in milk); 2687 (aircraft disinsection).

departments, 38 state veterinary laboratories, veterinary laboratories for research in 10 universities, 11 non-government institutes that provided for a veterinary research service, and each large abattoir was provided with a laboratory for the examination of meat.

The laboratories are under the Chief Veterinary Officer whose department is under the Ministry of the Interior. The laboratories provide specialists for problems of sterility, nutrition and control measures for unusual animal disease.

All state veterinary laboratories in the American zone suffered war damage except the one in Schleissheim. Several animal diseases that had been absent from Germany for years re-appeared at the end of the war, such for example as glanders and dourine. The incidence of tuberculosis and brucellosis increased.

As meat and meat products are so often eaten raw, or nearly raw in Germany, the provision of the laboratory service at all abattoirs has been elaborately organized. Special non-veterinary trichinosis inspectors work under the veterinary officers.—D. S. RABAGLIATI.

KRAUSS, S. (1949.) **Udział służby weterynaryjnej w realizacji 3-letniego planu gospodarczego. [The veterinary service and Poland's 3-year plan.]**—*Med. weteryn.* 5. 1-9. 2744

The task of the Polish veterinary service in the fulfilment of the three year plan of economy was discussed.—E. G.

LIVESTOCK HYGIENE

JONES, B. J. & BROWN, J. B. [Revised by MILLER, M. D. & BOOHER, L. J.] (1949.) **Irrigated pastures in California.**—*Circ. Calif. agric. Ext. Serv.* No. 125. pp. 5-58. 2745

See also absts. 2689 (disinfectants); 2803 (book, farm hygiene).

A description of the irrigated pastures in California. One section—a short discussion of existing literature—deals with the question of increased danger from helminths in stock which graze these pastures.—G. B. S. HEATH.

REPRODUCTION AND REPRODUCTIVE DISORDERS

OLBRYCHT, T. M. (1949.) **L'importance de l'insémination artificielle dans la lutte contre les maladies infectieuses. [Artificial insemination as a means of preventing infectious diseases.]**—*Bull. Off. internat. Epiz.* 32. 177-181. 2746

This article incorporates no original research results; nor are any sources supplied for the facts quoted. It is claimed that in the horse, besides dourine, and salmonella and virus abortion, the following diseases are spread by natural service and can be controlled through artificial insemination: strangles, glanders, influenza, in-

fectious anaemia, coital exanthema, and skin diseases. The usually-accepted venereal diseases of cattle are listed, and the fact is stressed that *Trichomonas foetus* has been shown to fulfil Koch's Postulates.

Artificial insemination is also advocated to aid in controlling swine fever and sheep pox.

—F. L. M. DAWSON.

WAGNER, H. (1949.) **Erfahrungen und Versuche in der Ziegenbesamung. [Artificial insemination of goats.]**—*Inaug. Diss., Hanover.* pp. 35. 2747

Of 406 goats artificially inseminated, all but 12 became pregnant, 74.1% to the first insemination, and 25.9% after two inseminations. Of those in the latter category, however, 50 received the two inseminations during the one oestrous period for experimental purposes. All 50 became pregnant. Experiments were carried out to determine the effects on the spermatozoa of varying proportions of egg yolk and glucose-phosphate buffer and of temperature on storage. The addition of 2-5% of fresh egg yolk to the buffer and a storage temperature of 8°C. appeared to be most favourable for goat semen. [See also SCHMIDT, K. *et al.* *V.B.* 21. 523.]

—A. T. COWIE.

ALMQUIST, J. O. (1946.) **The effect of certain coal-tar dyes used for semen identification on the livability and fertility of bull spermatozoa.**—*J. Dairy Sci.* 29. 815-820. 2748

Certain coal tar dyes used for colouring foods and drugs were found suitable for adding to semen for identification purposes and to minimize the risk of errors at insemination. The dyes employed had no deleterious effects on the survival time of stored sperm nor on the conception rates.—A. T. COWIE.

TANABE, T. Y. & CASIDA, L. E. (1949.) **The nature of reproductive failures in cows of low fertility.**—*J. Dairy Sci.* 32. 237-246. 2749

The incidence of fertilization and of early embryonic mortality in cows which clinically appeared to be normal and which had regular cycles were studied. The animals were inseminated and then slaughtered 3 or 34 days later, 104 cows being examined. Failure of fertilization was noted in 39.7% of the cows, embryonic mortality occurred in 39.2% and only 21.1% of the animals had normal embryos 34 days after insemination.

Genital abnormalities which were not detected clinically were found in 10.6% of the cows, 7.7% of these revealed either unilateral or bilateral tubal abnormalities and 2.9% had failed to ovulate. In those animals which were positive for *Brucella abortus* infection no differences from negative animals were demonstrable

and tubal abnormalities were not observed in the positive animals. Guernseys had a lower breeding efficiency than Holsteins although the latter had a higher incidence of genital abnormality.—J. A. NICHOLSON.

HENDRICKX, J. H. V. (1949.) **Practische Veeverloskunde en nota's over Veterinaire Gynecologie. [Practical obstetrics and notes on veterinary gynaecology.]** pp. 199. Antwerp, Brussels, Ghent, Leuven & Amsterdam: Uitgeversmij. N. V. Standaard-Boekhandel. F. 9.90. 2750

In this work the author has endeavoured to give a concise account of the classical conditions affecting the genital systems of the domesticated animals. He begins with an outline of the anatomy of the genital organs of the cow, the animal which is predominant throughout the book, and to a lesser extent of the mare. This is followed by a description of the methods used in pregnancy diagnosis in the cow and of the biological and chemical tests for pregnancy in the mare. Infertility in males and females is discussed and the well known methods of attempting to restore fertility both by physical means and endocrine administration are described, together with an outline of such diseases as brucellosis and trichomoniasis in the cow and the surgical repair of the perineum in the mare. Artificial insemination of the cow is well described and a few lines are devoted to its application to the other animals.

Parturition, the correction of dystocia and embryotomy in the mare and cow follow the lines advocated by Benesch and Götze but the parts devoted to the other animals are very disappointing. For analgesia the author favours chloral narcosis rather than epidural anesthesia. The book concludes with a few short chapters on post-parturient conditions. There is neither index nor bibliography although the names of other authors appear in the text and are acknowledged in the foreword. The illustrations are the simplest of line drawings interspersed throughout the text; a few have no captions and are not referred to by number. It is difficult at times to correlate them with what is written.

—A. A. FORSYTH.

See also absts. 2707 (inherited factor for erythrocyte type in the horse); 2785 (report, U.S.A.); 2795 (heredity of predisposition to disease); 2800-2801 (books, breeding).

ZOOTECHNY

PAGOT, J.-R. (1949.) **L'élevage dans la zone subtropicale des États-Unis. (Comparaison avec l'Afrique occidentale.) [Livestock in the subtropical areas of the U.S.A.]—Rev. Élev. Méd. vét. Pays trop.** 3. 167-174. 2751

A report on the breeding stock of King Ranch. This ranch originally used Mexican Long Horns, a quick maturing breed but of poor carcass quality. Crossed with Shorthorns and Herefords somewhat better carcasses were pro-

duced but the hybrids were less resistant to the hot humid climate and the local Texas fever. In 1910, 52 zebu bulls were introduced and the ranch now contains 80,000 head of cattle of

mixed zebu, Shorthorn, Hereford and Mexican blood. 1,500 selected bulls and 5,000 selected cows maintain the breeding stock at a high level.—R. MACGREGOR.

See also absts. 2686 (dipping tanks); 2696–2700 (effect of temperature and humidity on cattle and poultry); 2706 (Philippine horses).

TECHNIQUE AND APPARATUS

ARTIOLI, D. (1949.) Nuovo metodo di colorazione per il criptococco di Rivolta. [A new staining technique for *Histoplasma farciminosum*.]—*Riv. Med. Vet. Zootec.* 1, 224–229. 2752

A staining technique for *Histoplasma farciminosum* is described, using a mixture of basic fuchsin and methylene blue. It is claimed to be simpler and more rapid than existing methods.

—G. P. MARSHALL.

STRUGGER, S. [Dr. phil. o. ö. Prof. der Botanik, Direktor des Botanischen Institutes der Universität Münster, i.W.] (1949.) Fluoreszenzmikroskopie und Mikrobiologie. [Fluorescence microscopy in microbiology.] pp. 194. Hannover: Verlag, M. & Schaper, H. DM. 13. 2753

This is a book which will appeal to specialists engaged in this particular field of study of the bacterial cell. The subject matter is discussed under the following main headings:—The principles of fluorescence microscopy; the fluorescence of fixed bacterial smears and of living micro-organisms; the cell physiology of bacteria; the optical differentiation of micro-organisms in soil. There are diagrams and photographs to illustrate the text and 30 tables summarizing experimental results. A survey of the literature is well covered by many references.—E. M. J.

BARER, R. (1949.) The reflecting microscope. —*Lancet.* 256. 533–534. 2754

B. described a microscope, the mirrors of which were made of speculum metal (a copper-tin alloy with a trace of arsenic) accurately figured by hand and coated with a reflecting layer of aluminium. The objective consisted of a small, spherical, convex mirror and a large, aspherical, concave mirror. The N. A. was 0.65. The condenser was similar and had a N. A. of 0.58. The use of aspherical surfaces enabled the N.A. to be increased up to 0.95, but a very high degree of technical skill is required for the construction of such mirrors. This instrument had a working distance of 13 mm., which greatly facilitates microdissection.

The reflecting microscope in addition to conventional purposes can also be used as a

polarizing microscope, and for fluorescence, interference and phase-contrast microscopy; in the study of infra-red absorption spectra it is an advantage. Using a photoelectric image converter, the infra-red image can be seen on a fluorescent screen. Using very short ultraviolet waves and mirrors of sufficient accuracy, it should ultimately be possible to work down to 1,000 Å or even less.—L. M. MARKSON.

CIOGLIA, L. (1947.) Sui metodi di conservazione del complemento. [Methods of preservation of complement.]—*G. Batt. Immun.* 36. 43–66. [English, French and German summaries. Abst. from summaries.] 2755

Desiccation of complement on filter paper had no effect on the durability of its potency; dried in the presence of phosphorus pentoxide it was still reliable after four months. Sodium fluoride preserved complement for up to eight months; sulphates—ammonium excepted—preserved it for only 1–3 months. C. explains the action of the salts as: (a) chemical-anions and cations having a synergic and antagonistic action; (b) physico-chemical—mainly by influencing the pH of the serum and the stability of its colloidal system.

[The test is apparently the haemolytic complement-fixation test so that “complement” presumably means g. pig serum—a point which is not made clear in the article.]

—L. M. MARKSON.

SELÇUK, H. (1948.) Serom Konsantrasyonunda yeni bir yönetim. [New method for concentration of serum.]—*Askeri vet. Mecmuası.* 26. 69–78. [English and French summaries.] 2756

The methods are described as physical, chemical and biological (but few details are given). Concentration of a tetanus antitoxin and of a serum haemolytic for sheep cells was effected, using a freezing method. In this way the antitoxin unitage was increased fifty-fold and the haemolytic titre about eight-fold.

—N. KARAMIZRAK.

ROMJN, C. (1947.) De klinische haemoglobinebepaling, getoetst aan enkele laboratoriummethoden. Tweede mededeeling: de haemoglobinebepaling in het laboratorium. [Clinical haemoglobin estimation tested by laboratory

methods. II. Haemoglobin estimation in the laboratory.]—*Tijdschr. Diergeneesk.* 72. 147–163. [English summary.] 2757

R. critically examined and compared the ferrometric, the gasometric and the spectrophotometric methods for haemoglobin estimation. He recommended the latter method, using monochromatic light of 540 mμ, and an estimated absorption coefficient (A_{540}) of 0.00113. The spectrophotometer may be substituted by a photoelectric colorimeter with a mercury lamp and green filter, for which the absorption coefficient is 0.00121 (A_{546}).—F.E.W.

STIGLER, R. (1949.) Ein Modell für den Mechanismus des Wiederkauens und des Erbrechen. [A model for the demonstration of the mechanics of rumination and vomiting.]

See also *absts.* 2468 (coagulase test in staphylococcal infection); 2520 (ring test); 2525 (collodion agglutination test for histoplasmosis); 2539 (bacterial inclusion bodies under electron microscope); 2540 (preparation of dourine antigen); 2568 (cultivation of F. & M. disease virus in bovine foetus); 2632 (cultivation of ascarid ova).

MISCELLANEOUS

LEUTHOLD, A. [Director of the Veterinary Surgical Clinic at Berne University.] (1949.) Grundriss der allgemeinen Chirurgie und Operationslehre. [Fundamentals of general surgery and surgical technique.] pp. 200. Munich/Basle: Ernst Reinhardt. Unbound Sw. fr. 7.60; Bound Sw. fr. 9.80. 2759

This is one of a series of pocket-size books on fundamentals in veterinary medicine, which the publishers have evidently produced for the benefit of students. The subject matter is quite comprehensive and the text is of compendium type. The first half of the book is devoted to wounds and their treatment in the widest sense, and the rest of the book deals with inflammation, neoplasms, cysts, diseases of the different body systems and tissues, castration, caesarian section and neutrectomy. All the common domestic animals are dealt with, though emphasis is laid on horses and cattle, in that order. There are numerous illustrations and practically all are successful.

The teaching is dogmatic and notably complete within the scope of the book and the student would appear to have little need to use a bulkier textbook for his instruction.—J. EDWARDS.

ANON. (1948.) What every medical officer should know about the atomic bomb. I. Introduction to nuclear physics. II. Biologic effects of nuclear radiation from an atomic explosion. III. Medical effects of atomic explosion. IV. Evaluation of the five atomic explosions. V.

—*Dtsch. tierärztl. Wschr.* 56. 170–172. 2758

A simple apparatus which demonstrates the mechanics of chewing the cud and vomiting is described. The oesophagus is represented by a thin-walled rubber tube, a portion of which passes through an air-tight glass cylinder with two stopcocks at either end, representing the cardia and the mouth. A rubber balloon which can be filled by means of a funnel represents the stomach or rumen. Three side tubes, guarded by clips, are led off from the glass cylinder. The first and widest, nearest the cardia, when open simulates a pneumothorax; the second is connected to a 200 ml. syringe, movements of the plunger representing the respiratory movements and the third and smallest can be used to demonstrate the effects of opening or closing the glottis or it can be connected to a manometer to show the pressure changes.—J. A. NICHOLSON.

Fundamentals of radiation pathology. VI. Pathologic anatomy of radiation effects of atomic explosion. VII. Detection of over-exposure to ionizing radiation. VIII. Public health aspects of atomic explosion. IX. Essentials of instrumentation. X. Protection against atomic bombs.—*Bull. U.S. Army med. Dep.* 8. 187–198; 269–283; 350–362; 422–433 & 504–517. 2760

This series of short articles deals with each of the headings given in a straightforward factual way. They comprise an overall general introduction to the essentials of atomic hazards. The nature of the atom, X-rays, α- and β-particles, isotopes, radiation, mass-energy relations, plutonium, critical size and the atomic bomb, and induced radio-activity by neutrons are discussed. The tolerance levels, effects on the tissues (and their response) and the blood and reproductive and genetical reactions are surveyed.

The medical effects are discussed under trauma (blast and indirectly 10% fractures, 54% contusions, 35% lacerations); burns (flash and flame), and radiation injury (eyes, pigmentation, skin epilation, gastro-intestinal disturbances, loss of testicular and ovarian function). Possible and likely effects in the pituitary and adrenal glands, heart, lungs, kidneys and bone-marrow are referred to.

An evaluation of the five atomic explosions is given, from which it is considered that an air burst is likely to be lethal over an area of 2 sq. miles and to have measurable effects over 7 sq. miles. The detection of over-exposure is related

to acute and chronic effects, with diarrhoea, vomiting, headache, anuria, and secondary infections due to leucopenia as symptoms. The public health aspects conclude with the assumption

that all food and water is likely to be dangerous—with attendant secondary risks resulting from heavy contamination of personnel.

—MALCOLM WOODBINE.

REPORTS

GREAT BRITAIN. (1949.) **London School of Hygiene and Tropical Medicine (University of London) incorporating the Ross Institute. Report on the work of the School for the year 1947-1948.** pp. 138. London: The School. 2761

The report draws attention to the fact that 1947 was the year of the Jubilee of Ross's discovery of the transmission of the malaria parasite by the mosquito. A review of the history of tropical medicine since the inception of the School in 1899 is given. The advantages and drawbacks of the tendency for research to pass out of the hands of schools and colleges and into those of Government financed and commercial organizations are pointed out.

The work of each department is reported in detail. An inquiry into various aspects of **TRYPANOSOME INFECTIONS** begun in the Parasitology Department had to be discontinued because of lack of suitable workers.

The Department of Public Health has done most of its teaching by means of seminars and is extending the scope of such groups. It places great emphasis on their educational value.

—W. S. MARSHALL.

CANADA, ONTARIO. (1948.) **Report of the Ontario Veterinary College, 1947.** [McNABB, A. L.] pp. 138. Toronto: B. Johnston, Govt. Printer. 2762

Details of the numbers of teaching staff and students are given. More time in the curriculum is being devoted to parasitology. At the end of the third year students are required to spend one month in meat inspection and one month in the Inspection Service, and control of contagious diseases, with the Health of Animals Division in their own Province and then two months with a Veterinary Practitioner.

The work of the various departments is given briefly. They are the departments of anatomy, preventive medicine and hygiene, clinical medicine and surgery, parasitology and fur-bearing animals, pathology, physiology and clinical chemistry, small domestic animals and department of extension and research. The latter department has subsections dealing with **MASTITIS**, serology (*Brucella*), poultry diseases, a study on hormonal therapy for **CYSTIC OVARIES IN CATTLE**, sheep and cattle diseases, conditions

affecting the central nervous system in cattle, chinchilla diseases, field work on **RHINITIS** of swine and studies from the department of pathology.—J. A. GRIFFITHS.

NEW ZEALAND. (1949.) **Department of Agriculture. Annual Report for 1948-49.** pp. 111. [Includes Report of Live Stock Division pp. 46-94.] Wellington: Govt. Printer. [2s.] 2763

The increasing incidence of **BLACKLEG** in sheep is becoming serious, and farmers are being instructed in vaccination.

The animal research division reports the appearance, for the first time, of virulent **FOWL CHOLERA** and **MONILIASIS** of poultry. Two series of observations have been made on deaths in new-born lambs and it is notable that 4% of such deaths are due to inadequate milk supply or defective teats.

In studies of milking methods it was determined that the temperature of the washing water has no effect on the milk yield. Normal practice is to use cold water from a hose pipe. A machine for milking sows and measuring individual "quarter" yields has been designed. Observations were made on the milk yield of sows with the object of selection for breeding.

—W. S. MARSHALL.

UNION OF SOUTH AFRICA. (1948.) **The South African Institute for Medical Research. Annual report for the year ended 31st December, 1947.** [CLUVER, E. H.] pp. 67. Johannesburg: The South African Institute for Medical Research. Items of veterinary interest pp. 24 & 25. 2764

The entomological section was engaged among other things on research into the feeding of the mixed isomers of benzene hexachloride to animals with the object of controlling ectoparasites. The gamma isomer ("gammexane") has already proved effective.

The chicken flea, *Echidnophaga gallinacea*, and the cattle ticks, *Boophilus decoloratus* and *Hyalomma aegyptium* were controlled in this way using a dose of mixed isomers containing 1 mg. gamma isomer per 100 g. live weight of animal.

The disadvantages of unpalatability and toxicity are realized but the opinion is expressed that the method has a great future. Continuous feeding of twice the effective dose for nine months had no apparent ill effects.

—R. G. MARES.

INDIA, ORISSA. (1949.) **Annual Administration Report of the Civil Veterinary Department, Orissa, for the year 1944-45.** pp. 25+xxix. Cuttack. Orissa: Govt. Press. [Rs. 1-9-0 or 2s. 4d.] **2765**

The report contains 12 chapters, 10 tables and 3 appendices. The staff consisted of one Deputy Director, one Veterinary Investigation Officer, one Livestock Officer, three Veterinary Inspectors, 37 Veterinary Assistant Surgeons and 57 Stockmen. The department is subordinate to the Director of Development.

During the year the livestock breeding activities were transferred to this department from the Agricultural department and some provincial cattle breeding and dairy farms were established. Improvement of cattle, sheep and goat breeding, cultivation of fodder crops and improvement of grazing lands were also undertaken.

There were 7 hospitals and 24 dispensaries in the Province. RINDERPEST occurred in three districts and the mortality was 1,569 cattle. HAEMORRHAGIC SEPTICAEMIA caused the death of 377 cattle. In all 368,248 animals were protected against RINDERPEST with serum alone, goat virus or goat virus plus serum against 297,694 in the previous year.

The total expenditure was Rs. 339,751/- against Rs. 133,824 in the previous year.

—M. K. SREENIVASAN.

CEYLON. (1948.) **Administration report of the Acting Director of Agriculture for 1946.** [SENEVIRATNE, L. J. DE S.] pp. 88. [Items of veterinary interest pp. D31-D41.] Colombo: Ceylon Government Press. Re. 1.90. **2766**

The outbreak of RINDERPEST which had started in 1943 [infection having been introduced by goats imported from India for provisioning troops during the war] was finally eradicated. Goat-attenuated virus was used; the number of cattle immunized is not stated. 62 deaths from ANTHRAX occurred in the Colombo Quarantine Station in sheep and goats imported from India. Of a total of over 40,000 carcasses of cattle inspected at the slaughterhouses in Colombo and Kandy only one was infected with TB. Fourteen cases of JOHNE'S DISEASE were diagnosed. Two cases of NASAL GRANULOMA in cattle caused by SCHISTOSOMA NASALIS were diagnosed by microscopic examination of nasal discharge. NEWCASTLE DISEASE vaccine was prepared using an egg-adapted strain obtained from Mukteswar; reaction in vaccinated birds was somewhat severe "a large proportion of the birds were mopy and some actually comatose" but the mortality rate was low.

An account is given of developments at the Departmental cattle farms, two in the hill country for cattle of European breeds, two in the low country for cattle and buffaloes of Indian breeds and one, also in the low country, for cattle of the local Sinhala breed, the total cattle stock on these five farms being about 3,000 head.—M. C.

CEYLON. (1949.) **Administration report of the Director of Agriculture for 1947.** [RHIND, D.] pp. 121. Report of Deputy Director (Animal Husbandry) and Govt. Veterinary Surgeon pp. 43-54. Colombo: Govt. Publications Bureau. Rs. 2.40. **2767**

The country was free from RINDERPEST throughout the year. Thirty-one cases of ANTHRAX occurred in sheep and goats while undergoing quarantine after importation from India. An outbreak also occurred in cattle on one of the departmental farms, the source of infection being imported bonemeal. Two cases of TB. were detected in a total of over 43,000 cattle slaughtered in the Colombo and Kandy slaughter houses. Cases of BOVINE LYMPHANGITIS are recorded from one of the departmental farms; the disease is being investigated. The number of brains examined and found positive for RABIES, by the Medical Research Institute was 456, the highest for some years. Over 42,000 fowls were immunized against NEWCASTLE DISEASE the mortality caused by the vaccine was 1%. *Spirochaeta gallinarum* was demonstrated, for the first time in Ceylon.

Developmental work on the departmental cattle farms is described.—M. C.

UGANDA PROTECTORATE. (1946.) **Veterinary Laboratory, Entebbe. Annual Report for 1946.** [WILSON, S. G.] Rep. vet. Dep. Uganda, 1946. pp. 18-29. **2768**

1 mg. per kg. of 1% solution of phenanthridinium compound 1553 kills *Trypanosoma congolense* in cattle but higher doses provoke photosensitization and may be fatal and lower doses result in drug resistant strains being evolved. It was established that *T. uniforme* is distinct from *T. vivax* and is non-pathogenic for goats. *T. simiae* is fatal to pigs and in these animals dimidium bromide (1553) merely changed a fulminating into a more chronic disease. Tick control is improved by the use of D.D.T. or gam-mexane either in sticky dips or given orally. The tick-borne parasites have not been successfully controlled with drugs but phenamidine is showing some promise. *Balantidium coli* causes heavy losses among young pigs on coarse feed, but is harmless to those on a more sloppy diet.

—R. MACGREGOR.

NYASALAND PROTECTORATE. (1949.) **Annual Report of The Veterinary Department for the year ended 31st December, 1948.** [MACPHERSON, D. F.] pp. 10. Zomba, Nyasaland: Govt. Printer. [fcp.] 2769

TUBERCULOSIS has been shown, by a testing survey, to be on the increase.

Apart from the endemic areas there were three outbreaks of TRYPANOSOMIASIS. Phenanthridinium 1553 and stibophen were used in treatment.

The only deterioration in the disease position was two epidemics of SWINE FEVER causing up to 98% mortality rate in some areas.

FOWL CHOLERA, BLACKLEG, EAST COAST FEVER, REDWATER, HEART WATER and RABIES are the other main disease problems.

Livestock improvement is being pushed forward against the conservative outlook of the indigenous owners. 1,000 more bull calves were castrated this year than in any previous year.

The usage of plateau grazing at 6,000 feet for indigenous cattle and sheep was a qualified success—conditions being unsuitable from March to July.—W. S. MARSHALL.

SWAZILAND. (1949.) **Annual Report of the Livestock and Agricultural Department for the year 1947.** pp. 41. [fcp.] Mimeographed.] 2770

Freedom from F. & M. DISEASE throughout the year is reported. The erection of stock proof fences has been effective in this respect. One fresh outbreak of EAST COAST FEVER and 29 of ANTHRAX were reported.

TRYPANOSOMIASIS involving *Glossina austeni* and *G. pallidipes* has been the major problem and phenanthridinium 1553 has been used in treatment successfully. Four aerial "smokings" with D.D.T. were also carried out at monthly intervals.

Other cattle diseases encountered were LUMPY SKIN DISEASE, BLACKLEG, ANAPLASMOSIS, PIROPLASMOSIS, HEARTWATER, SWEATING SICKNESS, CONTAGIOUS ABORTION and CALF PARATYPHOID.

FOWL TYPHOID and FOWL POX affected poultry but there has been no spread of FOWL PEST from neighbouring areas.

For the dipping of cattle a gradual change over from arsenical dips to gammexane is taking place, the latter proving more effective.

The Agricultural Division report draws attention to the problem of soil erosion resulting from overstocking.—W. S. MARSHALL.

ANON. (1949.) **Annual report on the East Africa High Commission for its inaugural year 1948.** pp. 26. London: H. M. Stationery Office. Colonial No. 245. 9d. 2771

Included in a comprehensive study of the formation and functions of the High Commission is a section on the East African Veterinary Research Organization. The organization came into being at Kabete on the 1st January, 1948. Biological products were issued on a large scale, the principal one being Kabete goat virus.

Research activities are very briefly mentioned, without references to the publications in which the details may be found. The Organization investigated cattle dip containing benzene hexachloride, the pathology of EAST COAST FEVER, lapinized rinderpest virus, and the trypanocidal drug anttrycide.—F. B. LEECH.

BECHUANALAND PROTECTORATE. (1948.) **Annual Report of the Veterinary Division for the year 1947.** [DAWE, E. C. S.] pp. 12. [fcp.] Mimeographed.] 2772

Despite drought and F. & M. DISEASE, prices were favourable and export figures of livestock and hides a record.

An outbreak of PASTEURELLOSIS resembling LUNG SICKNESS occurred in cattle.

Vaccinations were carried out against ANTHRAX, BLACKLEG, CALF PARATYPHOID, CONTAGIOUS ABORTION and BOTULISM.

Dimidium bromide and "Antrypol" (suramin) were used for TRYPANOSOMIASIS; 27 blood samples were sent to Onderstepoort for DOURINE tests. 18 doses of ANAPLASMOSIS vaccine were issued. The most important disease during the year was F. & M. DISEASE which was controlled by cordons, bush fences with disinfection posts on all routes passing through them and direct inoculation of healthy cattle within them. Stock free zones were created. Veterinary control was greatly assisted by the police. RABIES occurred.

Several thousand more cattle, sheep and goats were dipped than in 1946 and a considerable amount of private clinical work done.

—R. G. MARES.

BECHUANALAND PROTECTORATE. (1949.) **Veterinary Department Annual Report 1948.** [BOARDMAN, N. H.] pp. 12. [fcp.] Mimeographed.] 2773

Routine vaccination continued and many more treatments of TRYPANOSOMIASIS were carried out with phenanthridinium. RABIES was again seen but did not spread. F. & M. DISEASE was severe and qualified and unqualified staff were loaned from neighbouring territories. The cordons had to be a police responsibility but a valuable innovation was the employment of prominent members of the Bamangwato tribe to supervise all stock areas adjacent to them. Direct inoculation of animals within the cordon was not practised except for one group of 9,000 cattle.

Vaccines from Gt. Britain, Denmark and N. Rhodesia were tested, but only the first showed any promise. As a result of the outbreak preliminary meetings to form an inter-territorial body for F. & M. DISEASE problems in southern Africa took place.—R. G. MARES.

NORTHERN RHODESIA. (1948.) Veterinary Department. Annual report for the year 1947. [HOBDAY, J.] pp. 19. Lusaka: Govt. Printer. 2774

Statistics are given of the livestock population and import and export of animals and animal products.

BOVINE CONTAGIOUS PLEURO-PNEUMONIA has been eradicated from Barotseland. The general health of stock was satisfactory; one severe outbreak of ANTHRAX was checked by vaccination. TRYPANOSOMIASIS was controlled on a large scale with phenanthridinium 3% solution at 1 ml. dose per 50 lb. body weight. EAST COAST FEVER is endemic, but mortality was low and sporadic, the other tick borne diseases are present. Two outbreaks of F. & M. DISEASE were controlled in the usual way by strict segregation and inoculation of all in-contacts. Fears of the re-entry of RINDERPEST from the north are lessening. RABIES was more prevalent and better control of dogs is urged.

Details are given of research into the true value of phenanthridinium for TRYPANOSOMIASIS, the efficacy of gammexane dips, the development of a RABIES vaccine and an improved technique in RABIES diagnosis. Routine laboratory services were extended. A list of blood films diagnosed is given.

The African Veterinary Assistants' School at Mazabuka completed its fourth year bringing the total of graduates qualified to date up to 60. Graduates are all employed in the Department.

There is a table setting out the diseased conditions requiring condemnation of meat at the Cold Storage Control Board's abattoir at Livingstone.—R. G. MARES.

THE GAMBIA COLONY. (1949.) The Annual Report of the Veterinary Department for the year 1948. [FULTON, A.] pp. 13. Bathurst: Govt. Printer. 2775

The Department started as a RINDERPEST unit in 1933 and was established in 1943: a summary of the five years 1943-48 is included. The policy of the Department is to develop the livestock industry and control disease; it has been hampered by shortage of staff and lack of suitable premises.

Two small outbreaks of RINDERPEST were quickly controlled. 4,000 cattle were immunized

with attenuated dried goat virus from Nigeria and lapinized virus was also tested. Two outbreaks of BOVINE CONTAGIOUS PLEURO-PNEUMONIA were controlled by slaughter, quarantine and triple vaccination of in-contacts. Mass inoculation with a Kenya strain vaccine now in its 90th generation gives good protection and over half the cattle population have been so inoculated.

Minor investigations and vaccine production were carried out by the laboratory. Statistics are given together with a livestock census for the year.—R. G. MARES.

BRITISH HONDURAS. [Undated.] Annual report of the Department of Agriculture, 1947. [FISHLOCK, C. W. L.] [Unpaged.] Items of veterinary interest Section I, part II. Govt. printer. 2776

A survey of the livestock industry written by the Veterinary Officer is part of this report.

The breeding of better stock is needed, good donkey stallions for mule breeding are wanted in particular.

A serious outbreak of FOWL TYPHOID was confined to the Northern District with a loss of about 750 birds. Several outbreaks of VESICULAR STOMATITIS in cattle occurred in the Cayo district but were controlled with 100% recovery. HELMINTHIASIS is prevalent in pigs and a mineral deficiency in all domestic animals. Nutritional ROUP caused deaths in poultry. Sporadic cases of ACETONAEMIA occurred in cattle. SELENIUM POISONING occurred in horses at pasture.

—R. G. MARES.

BRITISH HONDURAS. (1949.) Annual report of the Department of Agriculture, 1948. [FISHLOCK, C. W. L.] Govt. printer. [Items of veterinary interest Section I, Part II (no page numbers).] 2777

Figures of animals slaughtered for food are given. Meat was imported illegally and the need for veterinary supervision of imports is stressed.

Veterinary services were put on a proper footing for the first time this year. There was no veterinary officer before May 1947. Eight lay assistants were selected from farm demonstrators within the Department and given a brief but useful course of training; their services are now available to all sections of the Colony.

1,200 castrations were performed with only three deaths. Fifteen outbreaks of FOWL TYPHOID were controlled. The owners did not co-operate by reporting outbreaks, but 1,000 birds were vaccinated and treated. Other diseases were FOWL CHOLERA, PULLORUM DISEASE, TETANUS in horses, FOOT ROT, COCCIDIOSIS in poultry, ULCERATIVE STOMATITIS in

horses and cattle, WORM INFESTATIONS and MINERAL DEFICIENCIES in all domestic species.

—R. G. MARES.

BERMUDA. (1949.) **Report of the Department of Agriculture for the year 1949.** [EVANS, W. R.] pp. 27. [Rept. Govt. Veterinary Officer pp. 21-24.] 2778

The disease problem during this period appears to have been small; one outbreak of SWINE ERYSIPELAS and a steady level of MASTITIS were the most serious. T.B., CONTAGIOUS ABORTION and SWINE FEVER appear to be controlled to the point of non-existence.

—W. S. MARSHALL.

LEEWARD ISLANDS. (1948.) **Report of the Director of Agriculture for the year 1947.** [HUTSON, L. R.] pp. 47. Items of veterinary interest pp. 39, 45-47. 2779

No serious outbreaks of disease occurred during the year, but drought at times reduced the plane of nutrition to a deplorably low level. Despite demonstrations, farmers make no effort to improve pasture, save fodder or grow soiling crops.

Stud animals maintained by the department have been well used, as have dipping tanks. 12,588 animals were dipped in Antigua. The veterinary panel system on St. Kitts, started with a Colonial Development and Welfare grant, cannot be continued in its present form.

T.B. affects about 8% of working oxen in Antigua. Elsewhere the incidence is negligible. MINERAL DEFICIENCIES are prevalent and recommended mineral mixtures for feeding to livestock have received increasing interest and resulted in considerable benefit to the stock.

The Chief Veterinary Officer acted as Director of Agriculture throughout the year.

—T. M. LEACH.

FALKLAND ISLANDS. (Undated.) **Annual report of the Agricultural Department for the year ending 31st December 1948.** [OLIVER, J. P.] pp. 2. 2780

A very brief report. The main animal industry is sheep rearing, and the flocks had suffered from a bad winter resulting in a reduction of the lamb crop by 10-12%. The wool clip was, however, of good quality. There is no incentive for cattle rearing beyond the local needs of beef and milk and these animals were as a whole in poor condition due to malnutrition. Equine parasites are common and these coupled with malnutrition cause poor health as a whole. Mechanical farming is being encouraged in preference to importing or rearing young horses.

—R. MACGREGOR.

CYPRUS. (1949.) **Investigations and developments in Cyprus agriculture 1938-1948.** [MCDONALD, J.] pp. 56. Items of veterinary interest pp. 40-50. Nicosia: Cyprus Govt. Printing Off. 5s. 2781

A useful measure of control over goats on free range, as part of the soil conservation programme, has been achieved by the Goats Law. A majority vote permits the exclusion of ranging goats from the village area; the department supplies improved goats for tethering.

Milk recording trials on small numbers of goats showed the Damascus variety to be heavier producers than Maltese or local varieties. Increased purchasing power of the population is shown by the growing demand for cow's milk. Milch cattle increased in number from some 300 in 1939 to 1,200 in 1946.

Selected donkey stallions continued to be purchased and distributed for mule breeding. From 1945, promising jacks have been bought on weaning and given the benefit of supplementary feeding during the period of active growth.

Selective breeding of local hens, started in 1939, has led to the development of the "Cyprus Black" breed; their productive capacity is comparable with that of Rhode Island Red and Light Sussex hens, although the eggs are lighter in weight.

Five mild outbreaks of "stomatitis" in sheep occurred between 1924 and 1943. In the latter year an epizootic developed and the disease was identified as BLUE TONGUE from material sent to the Onderstepoort Laboratories. Vaccines prepared with South African strains of virus did not protect sheep in Cyprus. In 1946 a vaccine was produced at Onderstepoort, using the Cyprus strain attenuated by chick-embryo passage. During an outbreak on the island, 20,000 sheep were inoculated with this vaccine; deaths from vaccination were less than 1% and a satisfactory immunity developed.

Both species of ox warble fly occurring in the island, *H. bovis* and *H. lineatum*, have been eradicated by compulsory hand dressing of cattle. The incidence fell from 78.4% of the total cattle inspected in 1939 to 0.2% in 1942. A few cases continue to occur of CATTLE INFESTATION WITH THE GOAT WARBLE FLY, *H. aeratum*.

An average of over six hundred thousand sheep and goats have been compulsorily inoculated against ANTHRAX each year; losses from the disease have been reduced to negligible proportions. Since a successful field trial in 1947 with a vaccine prepared from an avirulent strain of *B. anthracis*, this method has replaced the vaccine formerly prepared from attenuated strains.—T. M. LEACH.

HOLLAND. (1948.) Verslag van de werkzaamheden der Rijksseruminrichting over 1948. [Holland. Report of the State Veterinary Serum Institute, 1948.] [VAN WAVEREN, G. M.] pp. 32. 's-Gravenhage: Staatsdrukkerij Uitgeverijbedrijf. 2782

During the year a policy of closer co-operation with the provincial animal health services was implemented, the institute assisting with specialized laboratory services. Much effort was also contributed on behalf of the state veterinary service in the matter of tuberculin production. G. M. van Waveren succeeded Dr. Reesen as head of the institute, early in 1948. Other staff are listed, together with information on visits and scientific papers prepared.

The work done is reported concisely in terms of diagnostic specimens examined and of diagnostic and immunizing agents issued. Two kinds of purified types of tuberculin were prepared for use on livestock—heat concentrated synthetic medium (H C S M) tuberculin and purified protein derivative (P.P.D.), and comparative tests were carried out on cattle. 760 cattle were tested with both products, with nearly identical results. In negatively-reacting animals the average increase in skin thickness was 0.8 mm., and in positive reactors it was 10 mm., to both types of tuberculin. In practice it is intended to regard thickness increases of less than 2 mm. as indicating a negative reaction. The English comparative test with mammalian and avian types of tuberculin was used on cattle in three provinces. Each animal received the two types of tuberculin on the same side of the neck, 12 cm. apart and the reactions were read after 72 hours. Advice is given on the interpretation of the varied responses that can occur. English experiences were confirmed.

The Japanese "Kondo" SWINE ERYSIPELAS vaccine was made and used on several thousand pigs. Instances of the disease occurring in vaccinated animals were as follows:—61 among 2,881 and 59 among 6,361. With changes in dosage such "breaks" could be reduced to less than 1%, a result regarded as very satisfactory. In 1948, 76.5 l. of this vaccine were issued. The technique of producing SWINE ERYSIPELAS antiserum in horses was studied. Intravenous injection of *E. rhusiopathiae* culture resulted in the death of some horses, and subcutaneous injection caused local abscess formation, but intramuscular injection was well tolerated.

The laboratory diagnosis service dealt with 5,724 specimens, of which nearly 4,000 were fowls. The findings are tabulated and briefly described. An apparently new disease of pigs, OEDEMA OF THE BOWEL was encountered; the

cause remained unknown. A new South African avirulent ANTHRAX vaccine was used on 350 cattle, all of which remained free from anthrax. Nearly 12,000 specimens for TB. diagnosis were received: 5.4% of them were positive. Nineteen per cent of 800 specimens sent for diagnosis of JOHNE'S DISEASE were positive.

Chemical analytical work was also done in connexion with poisoning cases, water testing and medicines offered for sale and over 5,000 samples of milk were examined for bacteria. As usual *Str. agalactiae* was about ten times more prevalent as a cause of BOVINE MASTITIS than *Str. dysgalactiae* or *Str. uberis*. For specific therapy two infusions of 50,000 units of aqueous penicillin at an interval of 24 hours were given approval. Other bacteriological work on the MASTITIS problem was also done.—J. EDWARDS.

U.S.A. (1949.) Report of the Chief of the Bureau of Animal Industry, Agricultural Research Administration, 1949. [SIMMS, B. T.] pp. 97. Washington: Superintendent of Documents, U.S. Govt. Printing Off. 25 cents. 2783

A detailed programme of research into most of the major diseases of domestic animals has been undertaken.

The outbreak of F. & M. DISEASE in Mexico was viewed as a possible serious menace to cattle in the U.S.A., and large-scale operations were being conducted to exclude it. In case these efforts should not be successful, personnel were being trained in Europe to staff a foot and mouth disease research centre.

Efforts to eradicate TB., BRUCELLOSIS, and JOHNE'S DISEASE were being made.

—G. B. S. HEATH.

U.S.A. (1949.) State of California. Department of Agriculture. [Report of] Division of Animal Industry.—Bull. Dep. Agric. Calif. 38. 319–351. 2784

Efforts to eradicate TB. from cattle, and BRUCELLOSIS from cattle and pigs have been fairly successful. *Boophilus annulatus* has now been found in California, and *Choriopotes bovis* has caused MANGE IN CATTLE. JOHNE'S DISEASE IN SHEEP has been encountered, and treatment with minerals was not successful. HAEMATURIA in a herd of Hereford cattle was associated with an unidentified *Leptospira* in the kidneys. WHITE MUSCLE DISEASE IN LAMBS responded well to the administration of wheat germ oil.

—G. B. S. HEATH.

U.S.A., INDIANA. (1949.) Sixty-second Annual Report of the Director of the Purdue University Agricultural Experiment Station, Lafayette,

Indiana, for the year ending June 30, 1949. pp. 140. Items of veterinary interest pp. 17-26. 2785

Poultry research bulked largely in the work of the station and covered factors influencing markets and marketing, effects of stilboestrol and thiouracil, fishery and distillers' by-products as ration supplements, and genetic studies of INHERITED FEATHER CONDITIONS.

In the livestock diseases section the main work done was the study of *Brucella suis* INFECTION IN PIGS and its transmissibility to cattle.

A small paragraph is devoted to REPRODUCTIVE DISORDERS IN CATTLE, but the investigation appears to have been elementary.

—W. S. MARSHALL.

U.S.A. MICHIGAN. (1943.) **Fourth Annual report of the Regional Poultry Research Laboratory, East Lansing, Michigan.** [WINTON, B.] pp. 21. [Mimeographed.] 2786

During the year, 91 White Leghorn chickens hatched, brooded and maintained in isolation attained the age of 300 days without the development of clinical LYMPHOMATOSIS nor any other manifestation of the avian leucosis-complex. In

a second lot of 51 birds, the brothers and sisters of those in the "free" group, there was a mortality of 27.5% from LYMPHOMATOSIS in 300 days. This second lot was hatched, brooded and maintained with chickens from other stock, many of which subsequently developed LYMPHOMATOSIS.

This adds to the already accumulated evidence that LYMPHOMATOSIS is transmitted from parent to offspring through the hatching egg, and that the disease is transmitted through mechanical means and/or by contact with infected chickens. It also shows that it is possible, under rigid quarantine to raise chickens for at least 300 days without their being affected with the disease.

In studying this disease (neural, ocular, and visceral) three major difficulties have been encountered, the high incidence of the disease amongst all chickens at the laboratory, the high mortality from CANNIBALISM and other "undetermined" causes and the lack of basic information concerning the fowl, particularly in the fields of anatomy, physiology and pathology.

Work done in several other co-operative state agricultural experimental station projects is also described.—D. S. RABAGLIATI.

BOOK REVIEWS

VAN HEYNINGEN, W. E. [M.A., M.Sc., Ph.D. Senior Research Officer, Sir William Dunn School of Pathology, University of Oxford.] (1950.) **Bacterial toxins.** pp. 133. Oxford: Blackwell Scientific Publications. 15s. 2787

The author is a biochemist and he presents bacteriologists and pathologists with the biochemical viewpoint on bacterial toxins and bacterial products allied to toxins. Light is thrown on the part which they play in producing disease or in facilitating the invasion of the body by bacteria.—M. C.

HAWKER, L. E. [D.Sc., Ph.D., D.I.C. Reader in Mycology in the University of Bristol.] (1950.) **Physiology of fungi.** pp. xvi+360. London: University of London Press, Ltd. 21s. 2788

Mycology has been a somewhat neglected subject in veterinary science and one hopes for an increasing interest in it. The emphasis in mycology in recent years has been mainly physiological and chemical. This book is written for those workers who have to deal with fungi but whose training is not primarily botanical and for that reason will appeal to veterinary research workers. The chapter headings indicate the scope of the book, namely:—life cycle of fungi;

growth and variation; nutrition; respiration, etc.; nutrition and sporulation; other factors influencing growth and sporulation; survival and germination of spores; interaction with other organisms. The illustrations are clear and there is a good index and also a bibliography.—M. C.

THANNHAUSER, S. J. [M.D. Ph.D. Associate Prof. of Medicine, Tufts College Medical School.] (1950.) **Lipidoses. Diseases of the cellular lipid metabolism.** pp. 595. New York: Oxford University Press. London: Geoffrey Cumberlege. 2nd Edit. 96s. 2789

The veterinary reader will find the first two parts covering the physiology and chemistry of lipid metabolism and hyperlipaemia of interest. These two sections with their bibliographies furnish a good account of present knowledge of the chemistry and physiology of lipid substances. The remaining four parts deal with the xanthomatoses and other disease syndromes in man associated with disease of the cellular lipid metabolism.—M. C.

MESSIERI, A. & MORETTI, B. (1950.) **Corso di semiologia e diagnostica medica veterinaria. [Symptomatology and veterinary diagnosis.]** pp. 562. Bologna: Libreria Universitaria di Lina

Tinarelli. 4th Edit. Revised and illustrated.
L. 4000. 2790

This fourth edition, the first illustrated and enlarged edition of the authors' book on clinical diagnosis in veterinary medicine fills most adequately a long standing gap in veterinary literature. It is not an exhaustive treatment of the subject, but deals with the commoner diseases of the domestic animals.

The first part deals with the elucidation and significance of symptoms in general and this is followed by a section on the systematic examination of the animal with the object of assessing its health or departure from health. The third part deals with the diagnosis of specific infections in horses cattle and pigs. Where a knowledge of laboratory procedures is essential for diagnosis, these are given in small print.

The remainder of the book is devoted to the examination, and the detection of, abnormalities in each anatomical system. A particularly useful feature is the inclusion of the description of the normal anatomy, histology and topography of each system.

The book is well illustrated within the limits of black and white photography, and should form a most valuable addition to the bookshelf of the young veterinary surgeon, not only for the information contained in it, but also for the training in scientific method and thought in diagnosis, which it instils.—I. W. JENNINGS.

ANON. (1950.) **Diagnostic procedures and reagents. Technics for the laboratory diagnosis and control of the communicable diseases.** pp. v+589. New York: American Public Health Association, Ltd. 3rd Edit. 48s. 2791

The book is made up of contributions from a number of referees each responsible for a certain disease or group of diseases.

Many of the referees are medical men, others are biologists, and veterinarians are represented by Hagan, W. A., who contributes the chapters on anthrax and glanders and by Stavitsky, A. B. who deals with leptospira infections. The choice of the methods which are described was the responsibility of the individual referee.

The greater part of the book deals with bacterial infections, but protozoan, helminth and fungal infections which occur in the U.S.A. are also included.

A very useful book for the laboratory bench.
—M. C.

SODEMAN, W. A. [M.D., F.A.C.P. The William Henderson Prof. of the Prevention of Tropical & Semi-Tropical Diseases, Tulane University of Louisiana School of Medicine.]

[Edited by.] (1950.) **Pathologic physiology: mechanisms of disease.** pp. xxi v+808. Philadelphia & London: W. B. Saunders Co. 57s. 6d. 2792

This well produced volume with the rather unusual title is a combined effort by 25 authors to bridge the gap between physiology and medicine, the effort as stated in the preface being to present a clinical picture of disease seen as physiological dysfunction.

The reviewer is not competent to assess how the various contributors dealing with a great variety of conditions have succeeded in achieving the objective of the book but there did seem to be some unevenness. Metabolic disorders do not receive separate consideration, but are considered only in relation to other disease groups and in dealing with nutritional diseases the mineral constituents of the diet receive rather brief mention. The veterinary reader may consider that diseases of the circulatory system and of the blood receive undue notice as about 300 of the 800 pages are devoted to them. Such an opinion of course reflects a difference in emphasis which exist between human and veterinary medicine; the latter being mainly concerned with disease of the herd or flock and to a much smaller extent with disease of the individual.

A useful and stimulating book.—M. C.

ROUSSY, G., LEROUX, R. & OBERLING, C. (1950.) **Précis d'anatomie pathologique. [A précis of pathological anatomy.]** pp. viii+1338. Paris: Masson et Cie. 3rd Edit. Fr. 2800. 2793

This huge précis is concerned mainly with the gross and microscopic tissue changes associated with disease. Systematically laid out, there are sections on primary tissue changes, circulatory disorders, inflammation in general and inflammation of the various tissues and organs in particular. The next section deals with tumours generally, the remainder of the book with a systemic discussion of tumours.

The authors consider that the advantages of such an exposition outweigh the disadvantages. On the other hand this narrow approach to pathology has resulted in a book which will appeal chiefly to the specialist reader. Yet there is nothing abstruse or esoteric about the text which is, in fact, quite suitable for undergraduate students. The problem is a difficult one nowadays. Pathology is such an extensive subject that to write a comprehensive text book on it would require a team of specialized authors and several volumes. Within the limits self-imposed by its authors, this book will be found useful. Important omissions are the histopathology of

the avitaminoses and of the endocrine dysfunctions affecting the female reproductive system. The book is profusely illustrated, the micrographs and most of the photomicrographs being very clear.—L. M. MARKSON.

MOSER, E. [Edited by WESTHUES, M.] (1950.) *Leitfaden der Huf- und Klauenkrankheiten. [Diseases of the hoof in horses and cattle.]* pp. viii+293. Stuttgart: Ferdinand Enke. 2nd revised Edit. DM. 24. 50. or DM. 27.—
2794

This second revised edition of Moser's book, first published in 1934 is a specialist treatise on diseases of the foot in horses and cattle and appears to be comprehensive in its scope. An attempt is made to classify the diseases of the various tissues, but this has led to some difficulty owing to the complexity of the contiguous tissues and organs. An example of difficulty in this connexion is the description given of what is spoken of as pododermatitis purulenta acuta, a septic condition affecting the hoof-forming matrix. The condition, however, rarely remains localized to this tissue.

The author describes two forms of what are commonly referred to as "foul of the foot" and "foot rot" in ruminants, which are clinically identical, the one however beginning without any initial wound of the soft parts of the claws. To explain this, he postulates infection with *Fusiformis necrophorus*.

The book on the whole is excellent, although it might be improved by the addition of still more figures; there are already sixty. Like all German textbooks which have appeared since the second World War the sections on treatment do not pay sufficient attention to the sulphonamides and antibiotics. The irritant chemicals that were used so commonly in the past are given prominence. For example, in the treatment of canker of the hoof in the horse, no less than four pages are devoted to lists of antiseptics and astringents used for local application, this in itself being evidence of the absence of a specific remedy.

This book is one of many editions of veterinary textbooks produced by professors of German Veterinary Colleges during the last five years. The net result is that these German veterinary textbooks on relatively narrow subjects are retaining their leading position as sources of instruction even though they tend to have fallen rather behind with regard to therapy.

The book can be recommended. The quality of the binding and the printing leave nothing to be desired.—J. EDWARDS.

TURPIN, R. (1951.) *L'hérédité des prédispositions morbides. [Heredity of predisposition to*

disease.] pp. 261. Paris: Librairie Gallimard. Fr. 450. 2795

This small volume deals with hereditary influences as affecting susceptibility to disease in man. The greater part of it is devoted to hereditary predisposition to tuberculosis, cancer, allergic conditions and rheumatism.—M. C.

NELSON, A. [Ph.D., D.Sc., F.R.S.E. Reader in Botany and Lecturer to Medical Students in the University of Edinburgh.] (1951.) *Medical botany. A hand-book for medical men and all who are concerned in the use of plants: nutritionists, dieticians, pharmacists and veterinarians.* pp. xi+544. Edinburgh: E. & S. Livingstone, Ltd. 30s. 2796

The author presents a general survey of the many aspects in which Botany may be applied to human and veterinary medicine, the original plan to cover all the fields of interest in detail being modified owing to the size and cost of the design. For economy reasons also references to the original literature have not been given. Written in an attractive, easily readable style the book contains much of interest to veterinarians, medical men, nutritionists, dieticians, and pharmacists and for those who wish, reference may be made to a companion volume, *Introductory Botany*, giving academic details. The book comprises three sections:—IA. Vegetable foods and food quality, dealt with in chapters 1-4; IB. Vegetable food stuffs considered in detail, in chapters 5-19; II. Vegetable drugs, poisons, stimulants, and other plant products of pharmaceutical interest, in chapters 20-24; and III. Medical problems on which plant science has a direct impact, dealt with in chapters 25 and 26, followed by an index. There are 16 excellent plates and many tables of experimental findings.

The printing is clear and the binding strong; the book should be a valuable addition to the libraries of all concerned with the use of plants.

—E. M. J.

YOUNG, J. Z. [M.A., F.R.S. Prof. of Anatomy at University College, London.] (1950.) *The life of vertebrates.* pp. xv+767. Oxford: The Clarendon Press. 42s. 2797

This book might be described as a zoology which gives an account of the embryology, anatomy, physiology, biochemistry and palaeontology of vertebrates in addition to much natural history all combined to form an exceedingly readable whole. It is profusely illustrated with clear line drawings, has an index and each chapter has a list of books for further reading.—M. C.

ZIETZSCHMANN, O. & NICKEL, R. (1950.) *Leitfaden der Anatomie der Haustiere. [Guide to*

the anatomy of domestic animals.] pp. 219. Hanover: Wissenschaftliche Verlagsanstalt K.-G. DM. 9.— 2798

Accepting the fact that copies of well established textbooks on comparative anatomy are still unobtainable to most German undergraduates, the authors have enlarged on their similarly-entitled edition published in 1947 [V.B. 19. 640.] by adding notes on further systems. This edition therefore covers the essentials not only of the skeletal, muscular, visceral and respiratory systems but also of the uro-genital and the circulatory systems, and of the nervous sense organs and common integument.

It is prepared with the conciseness and skill expected of the authors and though primarily intended to supplement the lectures given in their own School at Hanover (it contains no illustrations) it can be said that this edition adds favourably to the series of "aid" books prepared for many subjects in many languages.

—C. W. OTTAWAY.

SUNDERMAN, F. W. [M.D., Ph.D. Prof. of Clinical Medicine Emory University School of Medicine.] BOERNER, F. [V.M.D. Late Associate Prof. of Clinical Bacteriology, Graduate School of Medicine, University of Pennsylvania.] (1950.) **Normal values in clinical medicine.** pp. xxx+845. Philadelphia & London: W. B. Saunders Co. 70s. 2799

The authors and their collaborators furnish a great mass of useful information on the standard values of many measurements of anatomical structures, excretions, secretions, body fluids, etc. in the human subject. In addition to drawings and diagrams there are 413 tables.

—M. C.

BRANSTON, B. [M.A.] (1951.) **Breeding for production.** pp. 105. London: Faber & Faber, Ltd. 12s. 6d. 2800

The objects of this book are to interpret to the farmer the science of genetics and to persuade him that the method of judging breeding cattle by inspection is useless and must be replaced by a system of progeny testing based on record keeping.

The interpretation of genetics consists largely of a simplification of some of the terms used by geneticists.—M. C.

FARRIS, E. J. [Executive Director and Associate Member, The Wistar Inst. of Anatomy & Biology.] [Edited by.] (1950.) **The care and breeding of laboratory animals.** pp. xvi+515.

New York: John Wiley & Sons, Inc. London: Chapman & Hall, Ltd. 64s. 2801

There are 16 chapters each written by a specialist and each dealing with a separate species or group of animals. In addition to the more usual rabbits, g. pigs, etc., the following animals are dealt with:—the dog, cat, ferret, opossum, fowl, reptiles, amphibia, fishes and drosophila. Each chapter gives an account of the housing, care, breeding, nutrition and diseases of the animal with which it is concerned. There is also a short chapter dealing with control of arthropod pests.

This is a book which should be in every laboratory which uses experimental animals.

—M. C.

ANON. 1950. **Handbook on the handling of animals and first aid.** pp. 172. London: National Veterinary Medical Association of Great Britain and Ireland in conjunction with Baillière, Tindall and Cox. 6s. 2802

This small book gives instruction on the first aid treatment of animals, especially dogs. Before a person can administer first aid it is necessary that he understand methods of approaching and handling animals so the first part is devoted to approaching, handling and methods of restraint. The explanations are short but lucid and the illustrations are clear.—M. C.

COTTIER, H. (1950.) **Hygiène et médecine vétérinaire à la ferme.** [Farm hygiene and veterinary medicine.] pp. 516. Paris: Librairie Hachette. Fr. 480. 2803

This book covers a very wide field. Written for livestock breeders and students of agriculture it deals with housing and feeding, stable management and with diseases of all classes of farm stock. The detail and the number of illustrations which have been squeezed into some 500 small pages is surprising. The covers are of paper and the binding very poor.—M. C.

SYKES, F. 1951. **Food, farming and the future.** pp. 294. London: Faber & Faber. 21s. 2804

Written by one of the humus enthusiasts this book advocates "natural" methods of feeding and managing animals and in dealing with their diseases. There are many provocative comments on orthodox methods especially in connexion with the feeding of Thoroughbreds.

Of special interest to the veterinary reader will be the author's remarks on the nutritive value of hay made on tripods and of the deep rooting herbs or weeds in pasture. Such feeding stuffs grown without artificial manures he is convinced greatly improved the fertility of his cattle and sheep.—M. C.

TURNER, N. (1951.) **Fertility farming.** pp. 264. London: Faber & Faber, Ltd. 16s. 2805

One of the five parts into which this book is divided is entitled "Animal Diseases. Their prevention and treatment by natural methods and with the aid of herbs". The extremely unorthodox nature of the author's views on disease may be gathered from his statements that bacteria are a result of disease, that vaccination is one of the causes of disease, and that John's disease may be cured by a treatment which chiefly depends upon fasting the cow for from two to three weeks. Abortion is stated to be a healing process in the life of the animal whose subsequent health and productive ability will be wonderfully benefited as a result. Fasting a cow for a week will benefit the subsequent milk yield. Such statements abound in this thoroughly unsound book.—M. C.

KNIGHT, R. L. [D.Sc., Ph.D., (Lond.), A.I.C.T.A. Senior Economic Geneticist, Empire Cotton Growing Corporation.] BOYNES, B. M. [B.Sc., Ph.D. (Dunelm). Ministry of Agriculture, Sudan Govt.] (1950.) **Agricultural science in the Sudan. A bibliography with abstracts.** pp. 251. Arbroath: T. Buncle & Co., Ltd. 20s. 2806

This is an attempt to survey in the form of a bibliography with abstracts all published work on agricultural science in direct relation to the Sudan. The emphasis is naturally on cotton, but a perusal of the index shows that veterinary

research has been included. For example there are numerous references to trypanosomes, bovine contagious pleuro-pneumonia, rinderpest, breeds of cattle, etc. The references are arranged alphabetically under the authors' names, references under the name of Bennett, S. C. J. number 26 and occupy four pages.

The book will be very useful to young officers going to the Sudan or other countries of similar character.—M. C.

PEYSER, A. (1950.) **Pars pro toto. Breviarium medicum internationale. [Medical abbreviations in English, German, French, Italian, Spanish and Swedish.]** pp. 196. Stockholm: Almqvist & Wiksell. Kr. 12. 2807

The compiler states in his preface (given in the six languages mentioned) that this is the first really international list of abbreviations used in the field of medicine to be published. He points out that "a chemist, a physicist, a botanist, or a bacteriologist, as well as a zoologist, a health officer, a librarian and a journalist" may be faced with the same problem in trying to interpret medical terms. The book should therefore be useful to a wide circle of workers especially as it includes the names of medical, scientific and welfare institutions and organizations, academic titles and degrees etc., which are almost invariably printed in their abbreviated form. Both the etymology and application of many of the abbreviated terms are given.—F. E. W.

BOOKS RECEIVED

(Notice of recently received books in this list does not preclude review.)

BESSEY, E. A. (1950.) **Morphology and taxonomy of fungi.** pp. xiii+791. Philadelphia & Toronto: The Blakiston Co. London: Constable & Co. Ltd. 50s.

CABLE, R. M. (1950.) **The illustrated laboratory manual of parasitology.** pp. viii+152. Minneapolis: Burgess Publishing Co. Revised Edit. \$2.50.

KJELDBJERG, J. (1950.) **Fødselshjaelp hos soen. [Obstetrics in the sow. Diseases of pregnancy, parturition and the puerperium and of newborn piglets.]** pp. 205. Copenhagen: Carl Fr. Mortensen, 2nd Edit. Kr. 20.-. Bound.

LAPAGE, G. (1951.) **Parasitic animals.** pp. xxi+351. Cambridge: University Press. 21s.

LEE, J. A. (1950.) **A synopsis of anaesthesia.** pp. 354. London: Simpkin Marshall Ltd. 2nd Edit. 15s.

LWOFF, A. (1951.) **Biochemistry and physiology of protozoa.** Vol. 1. pp. x+434. New York: Academic Press Inc. \$8.80.

MILLER, A. R. (1951.) **Meat hygiene.** pp. 420. London: Henry Kimpton. 52s. 6d.

PINCHER, C. (1950.) **Spotlight on animals.** pp. 188. London, New York, Melbourne, Sydney and Cape Town: Hutchinson & Co. (Publishers) Ltd. 12s. 6d.

PRATT, R. & YOUNGKEN, H. W. (1951.) **Pharmacognosy: the study of natural drug substances and certain allied products.** pp. 644. London, New York & Montreal: J. B. Lippincott Co. \$8.50.

PRICE, F. W. (Edited by.) (1950.) **A textbook of the practice of medicine including sections on diseases of the skin and psychological medicine.** pp. 2076. London, New York & Toronto: Geoffrey Cumberlege, Oxford University Press. 45s.